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Massachusetts Division of Health Care Finance and Policy

# Massachusetts Health Care Trends: 1990-1999

October 2000

Louis I. Freedman, Commissioner



Argeo Paul Cellucci, Governor  
Commonwealth of Massachusetts

William D. O'Leary, Secretary  
Executive Office of Health and Human Services



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# Foreword

**T**wo approaches—chronological and geopolitical—governed much of what is included in *Massachusetts Health Care Trends: 1990-1999*. We looked at our health care system in the broadest possible way and asked two basic questions: How has the system changed since 1990 and in what ways does it differ from the United States as whole?

“A Decade in Review” (see page 1), is an analysis of actual events whose meaning and significance in the larger picture is open to interpretation. We offer an interpretation that rings true to us from our vantage point, knowing that others will have different interpretations of the same events.

The bulk of the report is a chart book, an extensive set of graphs with explanatory bullets, some of which draw the reader’s attention to related information in another section.

“Chapter 3: Health Care Delivery System” (see pages 33-62) includes information concerning the financial margins of hospitals, nursing homes and community health centers, but in the text we refer to the related financial margins of HMOs found in “Chapter 2: Health Care Financing” (see pages 19-32). Such distinctions between providers and financiers are somewhat arbitrary given the role-blurring that occurred over the last ten years (see page 2), but the reader is directed to related graphs when relevant.

The appendices include a reference list of hospital and HMO consolidations, and a time line which provides a helpful chronological listing of events. As time passes and certain changes are institutionalized, it’s often difficult to remember when the HEDIS data set measuring health plan performance was established (see page 84) or when Harvard Community Health Plan and Pilgrim Health Care became Harvard Pilgrim Health Care (see page 86).

Many who will read this report are primarily concerned with the health of the system, others with the health of institutions, and still others with the health of individuals. We hope that *Massachusetts Health Care Trends: 1990-1999* serves all equally well and that you will come back to it again and again.





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# A Word About the Division

## **Satisfying the Need for Health Care Information**

**T**he Division of Health Care Finance and Policy collects, analyzes and disseminates information with the goal of improving the quality, efficiency and effectiveness of the health care delivery system in Massachusetts. In addition, the Division administers the Uncompensated Care Pool, a fund that reimburses Massachusetts acute care hospitals and community health centers for services provided to uninsured and underinsured individuals.

The effectiveness of the health care system depends in part upon the availability of applicable information. In order for this system to function properly, purchasers must have accurate and useful information about quality, pricing, supply and available alternatives. Providers need information on the productivity and efficiency of their business operations to develop strategies to improve the effectiveness of the services they deliver. State policy makers need to be advised of the present health care environment, as they consider where policy investigation or action may be appropriate.

As part of its health care information program, the Division of Health Care Finance and Policy publishes reports to meet this need for information. These reports focus

## Mission

The Division's mission is to contribute to the development of policies that improve the delivery and financing of health care in Massachusetts by:

- collecting and analyzing data from throughout the health care delivery system;
- disseminating accurate information and analysis on a timely basis;
- facilitating the use of information among health care purchasers, providers, consumers and policy makers; and
- ensuring access to health care for low-income uninsured and underinsured Massachusetts residents through thoughtful administration of the Uncompensated Care Pool.

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on various health care policy and market issues.

## **Organizational Structure**

The Division of Health Care Finance and Policy is an administrative agency within the Executive Office of Health and Human Services. The Commissioner is appointed by the Governor.

The organizational structure is comprised of several distinct groups:

- Health Systems Measurement and Improvement Group
- Health Data Policy Group
- Pricing Policy and Financial Analysis Group
- Audit Compliance and Evaluation Group

Each group is responsible for a different aspect of the agency mission.

### ***Health Systems Measurement and Improvement Group***

The Health Systems Measurement and Improvement Group (HSMIG) works to improve the delivery of health care in Massachusetts by evaluating the changing health care system and providing useful analyses and information to policy makers, health care providers, and purchasers. The group also conducts health services research and policy analysis for a variety of different audiences to improve the delivery and value of care. In recent years, the Group has analyzed and reported on several areas of interest, including preventable hospitalizations, hospital readmissions, health care reform in Massachusetts, trends in HMO premiums and insurance status. The group manages demonstration projects funded through the Uncompensated Care Pool whose goal is to

improve health services to uninsured and underinsured persons while reducing the demand on the Pool to finance free care. Finally, the group is charged with providing information to consumers on managed care organizations in Massachusetts.

### ***Health Data Policy Group***

The Health Data Policy Group (HDPG) is charged with the development and appropriate use of Division databases and is responsible for evaluating health care data management issues across organizations and providing information and reports to providers, plans, researchers and the government.

HDPG is responsible for the collection and release of hospital discharge data and observation stay data. The group is also responsible for managing the release of accurate hospital and nursing home cost and financial data. HDPG, in partnership with other organizations, uses these data for projects that involve benchmarking. HDPG develops products that meet anticipated information needs including industry trends, data products and custom reports. As well, HDPG is responsible for developing and implementing confidentiality and privacy protocols for the use of data. The group conducts research and evaluates new health data policy issues such as national standards for electronic data interchange and privacy legislation.

### ***Pricing Policy and Financial Analysis Group***

The Pricing Policy and Financial Analysis Group develops health care policies, methods and payment rates that support the procurement of high quality services for public beneficiaries and that promote program goals and efficiency in the health care delivery system. This group also administers the Uncompensated Care Pool in a manner that ensures access to health care for low-income uninsured and underinsured indi-



viduals, that promotes operational efficiency and simplicity of administration, and that is coordinated with the Commonwealth's network of health care initiatives for this population. In addition, the group provides information, analysis and recommendations to policy makers to support their health care financing decisions, and performs specialized analyses of innovative health care financing and purchasing methods.

#### ***Audit Compliance and Evaluation Group***

The Audit Compliance and Evaluation (ACE) Group examines financial data reported to the Division of Health Care Finance and Policy. The ACE Group performs audit, review, screening and quality control functions that provide the building blocks for the Division's work in developing pricing policies and measurement tools to improve the health care system in Massachusetts.

The Division of Health Care Finance and Policy's support units include Administration, the Information Technology Group, the Office of the General Counsel and the Office of Communications.

#### ***Administration***

The Office of the Executive Secretary oversees the agency's budget, regulatory process and personnel.

#### ***Information Technology Group***

The Information Technology Group is responsible for managing the Division's computer network and databases.

#### ***Office of the General Counsel***

The Office of the General Counsel litigates administrative appeals filed by providers, analyzes proposed legislation relative to the health care delivery system and provides legal advice to the Commissioner and staff concerning the development and application of regulations, policy positions and pricing information.

#### ***Office of Communications***

The Office of Communications performs a wide array of services for the Division. These responsibilities include:

- handling inquiries from the media and other outside parties;
- editing, designing and producing the Division's print publications;
- developing and maintaining the agency's Internet web site;
- editing, designing and producing presentation materials;
- representing the agency at health care conferences; and
- serving as the point of contact for many general inquiries.

This organizational structure reflects the focus of the agency mission and supports the Division's efforts to provide useful information to purchasers, providers, and policy makers.



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**Massachusetts Health Care Trends: 1990-1999**

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# A Decade in Review

out the benefit of hindsight. The largest changes—paradigm shifts—cannot be adequately depicted in a graph or chart. Six such shifts best summarize the decade.

## The States Tackle Health Care Reform

The first paradigm concerns the turn in attention from the federal to the state level for health care reform. In 1993, a new president set out to remake the health care system to address both rising health care costs and the rising number of uninsured. When efforts for reform collapsed at the federal level, action on these issues devolved to the states to a greater extent than in any previous time.

Many states passed legislation suited to their own demographics and political forces. In Massachusetts for example, one of the success stories of the decade is the substantial progress in decreasing the number of uninsured through Medicaid expansion, small group and individual insurance reform, and the Children's Health Insurance Program (a federally driven expansion but one inspired nationally by a Massachusetts reform, Chapter 203 of 1996). Today, states have assumed the reform role once associated with Congress and many people look to the states for leadership and incubation of ideas in health care.

## HMOs Pushed the Market— and the Market Pushed Back

The second paradigm concerns Massachusetts HMOs that morphed from tightly controlled exclusive networks to equal opportunity contractors, while their reputation in the general media faded from savior to villain. In 1990, there were high expecta-

**B**y almost any measure, the last ten years have been tectonic ones for health care in Massachusetts, leaving no industry sector untouched. Most observers would say these changes have left our health care institutions worse off than in 1990. Objective indicators, primarily financial, largely confirm that impression.

Exactly where were we in 1990? Were those really the good old days of health care? What were the seminal events that brought us to where we are in 2000? In what ways are we and our health care industry better off than in 1990?

## Indicators and Paradigm Shifts

This report summarizes the past decade and shows how the current health care situation developed. We have selected important trends to tell the story. Most indicators show tremendous change but, remarkably, some look no different than in 1990. Many lend weight to the often-heard mantra, "Massachusetts is different" from the United States as a whole. Some simply reflect trends that occurred in our society, such as a widening of the income disparity between the highest- and lowest-earning families.

Many of the highlighted indicators interrelate in a loose cause and effect relationship that is rarely easy to see with-

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tions that HMOs would not only retard the growth in health care spending but also correct many of the glaring faults of indemnity insurance.

Lost in today's incessant HMO bashing is the memory of paying out of pocket for well child care and adult preventive services, the patient's endless paperwork required for reimbursement, the systemic incentives for over-treatment, and the lack of payer oversight regarding the quality of services provided. Managed care has addressed, albeit imperfectly, these faults and others. It has also enabled the development of the fledgling science of outcomes measurement by virtue of its large databases and acknowledged role in "managing" care.

Indemnity insurers have a stake in ferreting out fraud and abuse but less standing and stake in measuring and improving care—an effort we now take for granted, but which was barely a whisper in 1990. It is no coincidence that the Institute for Health Care Improvement, incorporated in 1991, is based in Massachusetts, nor that its founder, Dr. Donald Berwick, was one of the early officers of Harvard Community Health Plan. The introduction of HMOs is inexorably linked to the spread of the outcomes measurement/quality improvement movement and is one of the triumphs of the 1990s.

But Massachusetts HMOs started the decade as insurers with restricted panels of contracted providers and ended the decade with nearly identical universal panels of providers. Their early promise to hospitals that, in exchange for deep discounts, the hospital would be one of only a handful to receive all of an HMO's admissions evaporated, as the plans capitulated to market pressure in an effort to buy market share. Consumers and their employers insisted on a dilution of the HMO network model to retain their historical choice to receive care anywhere—but at HMO level premiums.

In 1994, pharmacies across the state succeeded in passing "any willing provider"

legislation which stipulated that HMOs had to contract with any pharmacy willing to meet their prices, and in 1997 Harvard Pilgrim Health Care lost a battle to New England Medical Center to maintain the right to exclude unneeded hospitals from its network. These two events signaled the end of selective contracting with deep discounts for volume, and the beginning of deep discounts for ... nothing.

### **Health Care Players Acquire New Roles**

The third paradigm shift of the decade is one of role blurring. No sector in 2000 is purely what it was at the onset of the decade. Provider, insurer, payer, purchaser, patient—we used to know what these were and could name an example of each.

Doctors and hospitals provided medical care but weren't at risk for its cost. That was the insurers' role before they also became known as providers who employed salaried doctors or owned hospitals and health centers. Employers were the insurers' clients on the commercial side until they took shelter in self-insurance—and their former insurers became simply their agent-payers.

Patients were, well, patients, until they became partners in their own health care, not to mention Internet investigators, medical error vigilantes, and pharmaceutical advertising targets. Medicaid used to be a payer until it saw its future in managed care and became a purchaser. And Medicare is juggling both payer and purchaser roles in an effort to hedge its bets, conserve its trust fund, and keep the political wrath of the elderly at bay.

### **A New Cosmology**

The fourth paradigm concerns the role of hospitals as the centerpiece of our system. Managed care, enabled by the twin forces of technology and pharmaceuticals, trans-



formed the process of medicine and as a by-product, its principal site of care. Along the way, we learned that the Copernican model of health care with all entities revolving around the hospital, was no longer always necessary and, sometimes, not even preferable. Hospitals began to share the spotlight—and dollars—with many other sites. Handoffs of care, which used to refer to transferring patient information during a nursing change of shift, now commonly refers to transfers between types of providers—different institutions often with separate ownership speaking a different internal language and often operating under a different reimbursement incentive.

Hospitalizations and hospital days both decreased steadily from 1990 through 1996 (days continued decreasing through 1999) despite the aging of the population. Shorter lengths of inpatient stay, made possible by technology and pharmaceuticals, created a bulge in home health care (see Figure 3.9 on page 44) and prescription drug use (see Figure 3.10 on page 45). Today's fragmented care picture is a part of our landscape and presents challenges for professionals as well as patients.

### **To Regulate or Not to Regulate?**

The fifth paradigm concerns the role of and regard for government involvement in health care in Massachusetts. The decade saw a shift away from strict rate setting to, lately, a call for a return to greater government involvement, particularly in HMOs. In 1990 Massachusetts was one of a handful of states with broad rate setting done centrally for its health care services but in 1991 a new Governor fought to "take the regulatory wraps off health care" and on September 30, 1991 the hospital rate setting authority expired, replaced in December, 1991 with Chapter 495.

Now, patient advocates as well as many industry experts are calling for a return to

more involvement in health care by state government. This is widely seen as a backlash to the receivership of Harvard Pilgrim Health Care and the dismal fiscal condition of many Massachusetts hospitals, nursing homes and community health centers (See Figures 3.22, 3.23 and 3.24 on pages 57-59).

Oversight is more favorably regarded not only in financial matters but also in provider closings, sales of institutions to for-profit companies, scope of and access to services offered, and medical errors. Market forces, which were viewed as an aid in keeping costs down when most interested parties lobbied for a relaxing of regulation ten years ago, have proven to be unforgiving and overly destructive, especially when coupled with the force of the federal Balanced Budget Act of 1997.

### **Patients Become Clients**

Finally, in ten years, an industry that used to be described as a service is now a business, its patients, now clients. In particular, many women who are the most frequent users of health care and by far the most frequent providers of familial care-giving, became disillusioned with the status quo even before the opening of the decade. Their dissatisfaction added voice to historically disenfranchised but less powerful groups such as the uninsured, linguistic and ethnic minorities and other marginalized populations such as homosexuals. Well publicized examples of how ill-served these groups were, were numerous, and sparked an effort to gain power in such areas as childbirth and AIDS care.

Strengthened by the sheer bulk of baby boomers experiencing the system en masse for themselves and their parents, these aroused consumers catalyzed a redefinition of the long-standing paternalistic patient-physician relationship. Horrified in 1995 by the most widely publicized medical error in recent memory and astonished by where

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it occurred and to whom,\* all consumers learned that health care is not immune to the errors of other industries, but the stakes are often higher.

Adding fuel to an already vital consumer movement, the Internet transformed information gathering and sharing in health care. It is estimated that as many as one in three patients who visits his or her doctor now brings information gathered from a health care Internet site. While still in its infancy, the Internet's potential for revolutionizing our health care system is obvious even as the exact dimensions of how that will happen are vague. As a tool with genuine promise to return significant cost savings, particularly in the area of administrative processes, it has already had the paradoxical effect of putting so much infor-

mation in the hands of consumers that the pressure on providers to prescribe the latest drug or experimental treatment may in fact drive up medical costs in the short term.

While patients have become consumers, however, we have not accepted the central reality of most other consumer transactions—value costs money. We want indemnity-like choice, alternative medicine, the latest technology and cutting edge pharmaceuticals, futile or unproven treatments, conveniently located MRIs—all for a \$5 copayment. Largely insulated from the price of these desires, we approach the next decade with our health care industry in jeopardy.

\* Betsy Lehman, health writer for *The Boston Globe*, died and Maureen Bateman was seriously injured from a chemotherapy overdose at Dana-Farber Cancer Institute in 1994.



# Chapter 1:

## Setting the Stage

**H**ealth care, together with education and computer technology, is what Massachusetts is known for throughout the world. We import students and patients and export college graduates, new doctors and healthier people. Health care is labor intensive which means it is expensive, but it provides jobs which are generally well paying and accompanied by benefits including health insurance. We capture a large

portion of federal research dollars which are similarly beneficial to our economy and with them we invent technologies, pharmaceuticals, and processes that we export internationally. It's an important business to those who make a living within it, to those who live here and benefit first by its discoveries and to the rest of the world to whom its benefits soon accrue.

We are a small state, better educated than most, older, and more likely to be employed with higher per capita income than the rest of the nation. Massachusetts also has a higher proportion of Caucasians than the United States as a whole, but we are changing and benefiting from other racial and ethnic groups who invigorate the labor pool, challenge some of our ideas, and hopefully will further our tradition of excellence in health care.

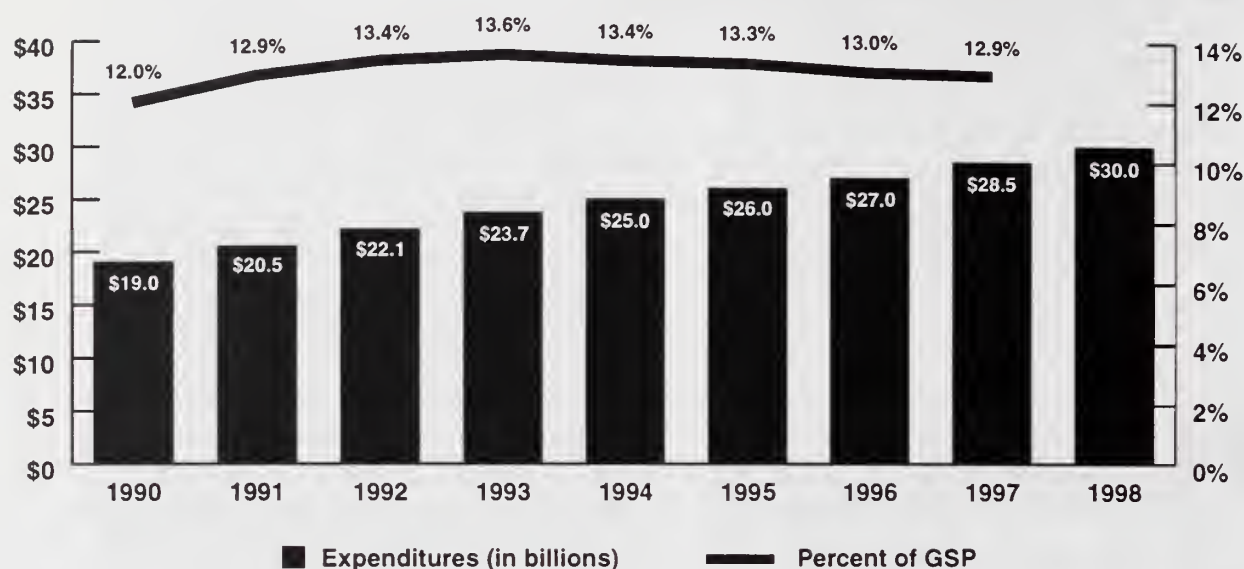
### The Importance of Health Care in Massachusetts

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## Massachusetts Health Care Expenditures and Percent of Gross State Product (1990-1998)



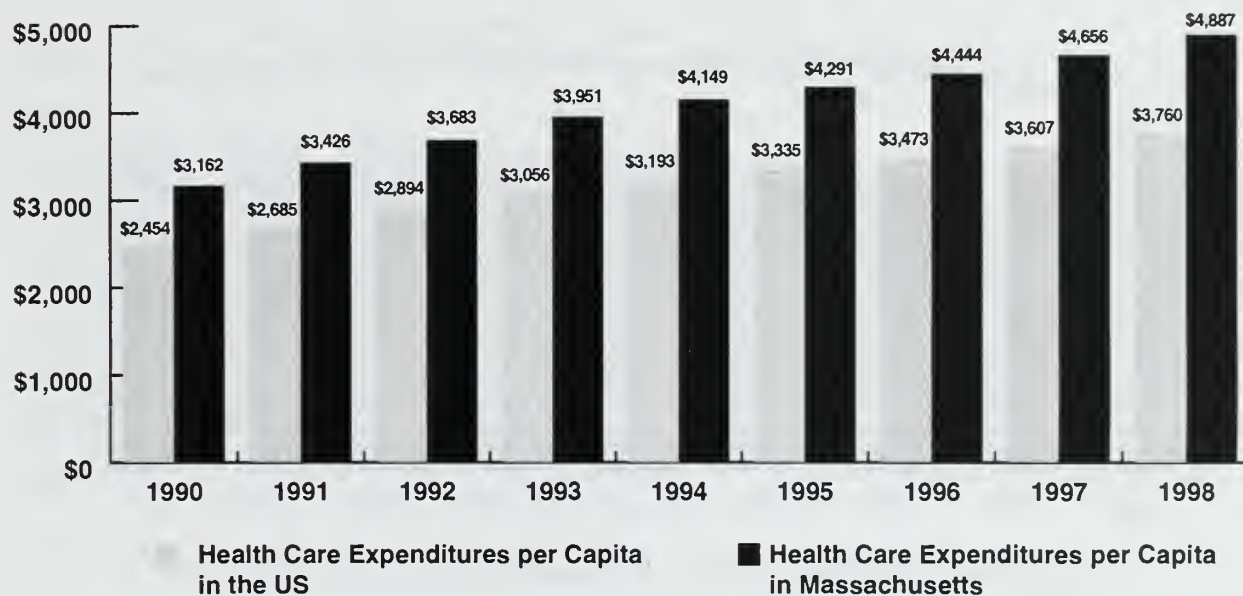
Sources: "Massachusetts Health Expenditures, 1980-98," Health Care Financing Administration, Office of the Actuary, National Health Statistics Group, July 17, 2000; "Regional Accounts Data, Gross State Product," US Department of Commerce, Bureau of Economic Analysis, January 13, 2000, [www.bea.doc.gov](http://www.bea.doc.gov)

Notes: Complete data were unavailable for 1998. These numbers have not been adjusted for inflation.

**Figure 1.1**

- Estimated health care expenditures<sup>1</sup> in Massachusetts increased by 58% from 1990 to 1998. The annual rate of increase gradually declined from 10% in 1990 to 5% in 1998—the average annual change was 6% over this period. The share of Gross State Product (GSP) accounted for by health expenditures peaked in 1993.
- Health care expenditures increased at a slower rate in Massachusetts than for the nation over this period, 58% versus 66%.<sup>2</sup> However, health care expenditures as a percent of GSP were consistently higher in Massachusetts than for the nation throughout the 1990s—13% in Massachusetts compared to 12% for the nation in 1997 (not shown).

## Health Care Expenditures per Capita in the US and Massachusetts (1990-1998)



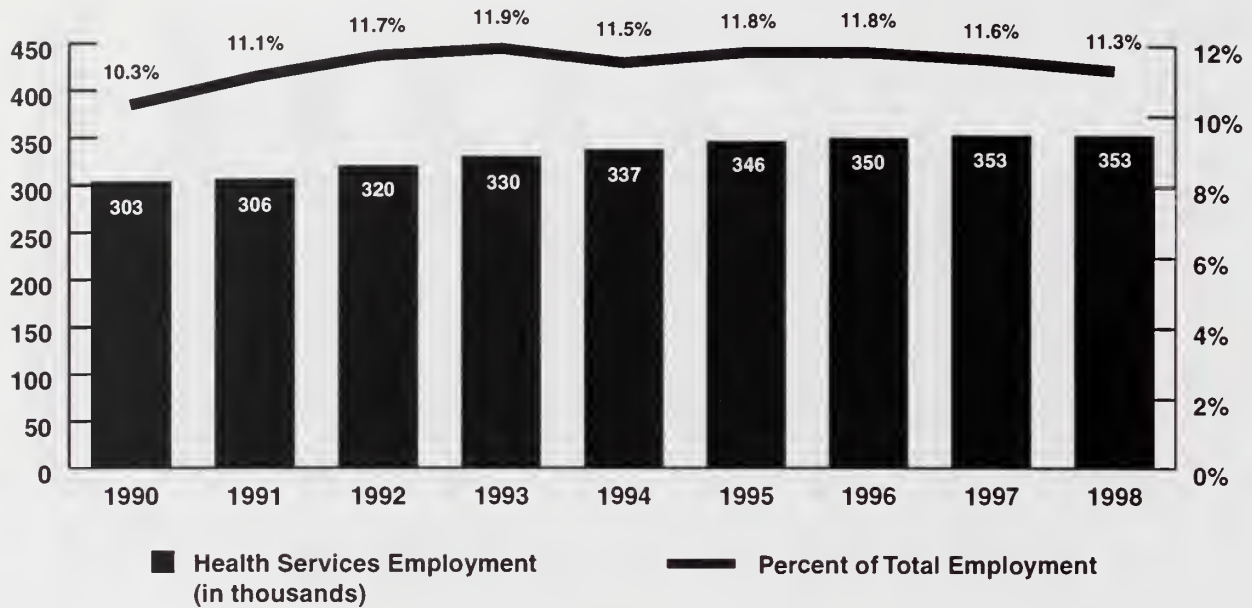
Source: "Massachusetts Health Expenditures, 1989-98," Health Care Financing Administration, Office of the Actuary, National Health Statistics Group, July 17, 2000

Note: These numbers have not been adjusted for inflation.

**Figure 1.2**

- Per capita health expenditures in Massachusetts were 30% higher than the national average in 1998. The rate of increase in per capita health expenditures in Massachusetts was close to the US rate from 1990 to 1998, 55% versus 53%. The relative difference in this per capita expenditure measure between Massachusetts and the nation was stable over this period.

## Health Services Employment and Percent of Total Employment in Massachusetts (1990-1998)



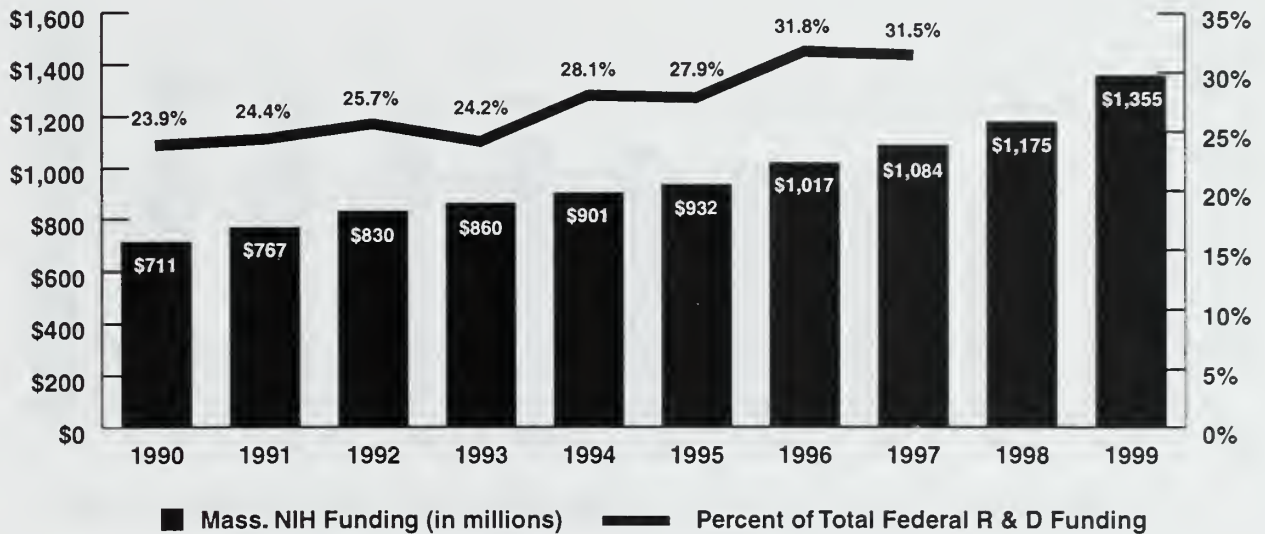
Source: Massachusetts Division of Employment and Training, [www.detma.org](http://www.detma.org)

**Figure 1.3**

- Employment in the Massachusetts health services sector<sup>3</sup> steadily increased over the last decade: from 302,679 employees in 1990 to 352,799 in 1998, an increase of 16.6%. The share of health care workers in the total state employment was the highest in 1993, also the year that health expenditures as a share of GSP peaked (see Figure 1.1 on page 6).
- Based on the US Bureau of Labor Statistics data which measures health services employment only in the private sector, health services accounted for 10.4% of total Massachusetts employment in 1998, compared with the national average of 7.9%. Massachusetts ranked third in this measure among all 50 states, behind only Rhode Island with 11.3% and North Dakota with 10.6% (not shown).<sup>4</sup>



## NIH Funding in Massachusetts and Percent of Total Federal Research and Development Funding (1990-1999)



Sources: "NIH Support to Institutions by State," National Institute of Health, <http://silk.nih.gov/public/cbz2zoz.> @ [www.states.fy9296](http://www.states.fy9296); 1990-1993 NIH funding data are estimated based on "NIH support to the Top 100 Cities," <http://silk.nih.gov/public/cbz2zoz.> @ [www.cities.top100](http://www.cities.top100); "Federal Funds Survey Detailed Historical Tables: Fiscal Years 1951-99," National Science Foundation, [www.nsf.gov/sbe/srs/nsf99347/pdfstart.htm](http://www.nsf.gov/sbe/srs/nsf99347/pdfstart.htm)

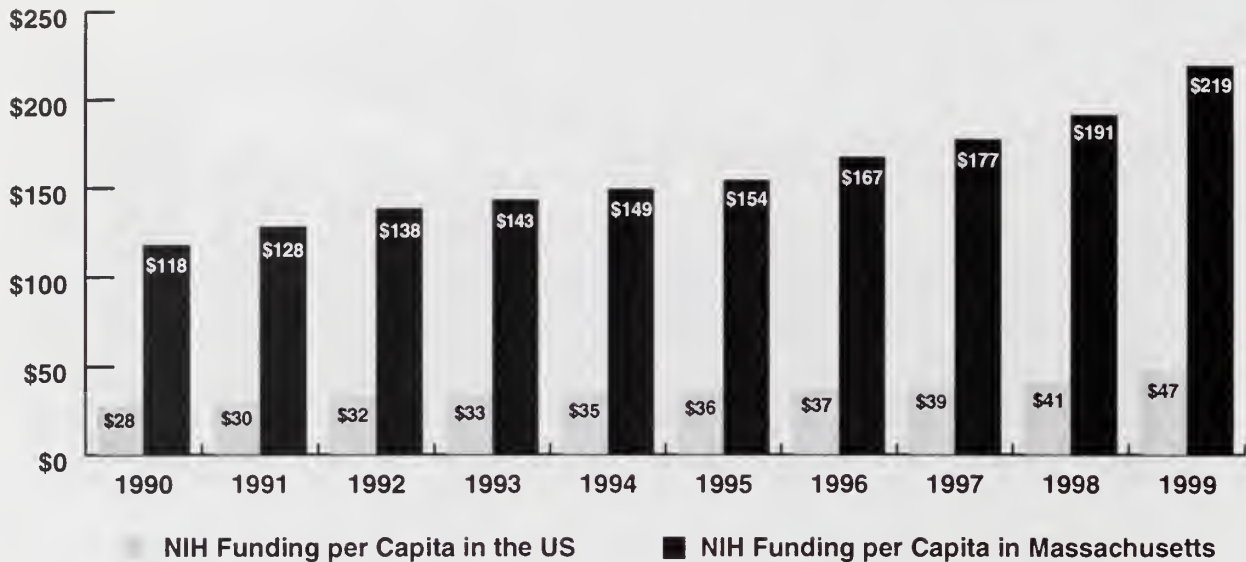
Notes: Complete data were unavailable for 1998 and 1999. These numbers have not been adjusted for inflation.

**Figure 1.4**

- Massachusetts received \$1.4 billion in medical research funding from the National Institutes of Health (NIH) in 1999, up 91% from \$711 million in 1990. Of all the research and development funding received by Massachusetts from the federal government in 1997, NIH funding accounted for about one third (32%), a substantial increase from 24% in 1990. NIH-funded research for universities and teaching hospitals provides important financial support for the health services, biotechnology, and medical devices industries, and education in Massachusetts.



## NIH Funding per Capita in the US and Massachusetts (1990-1999)



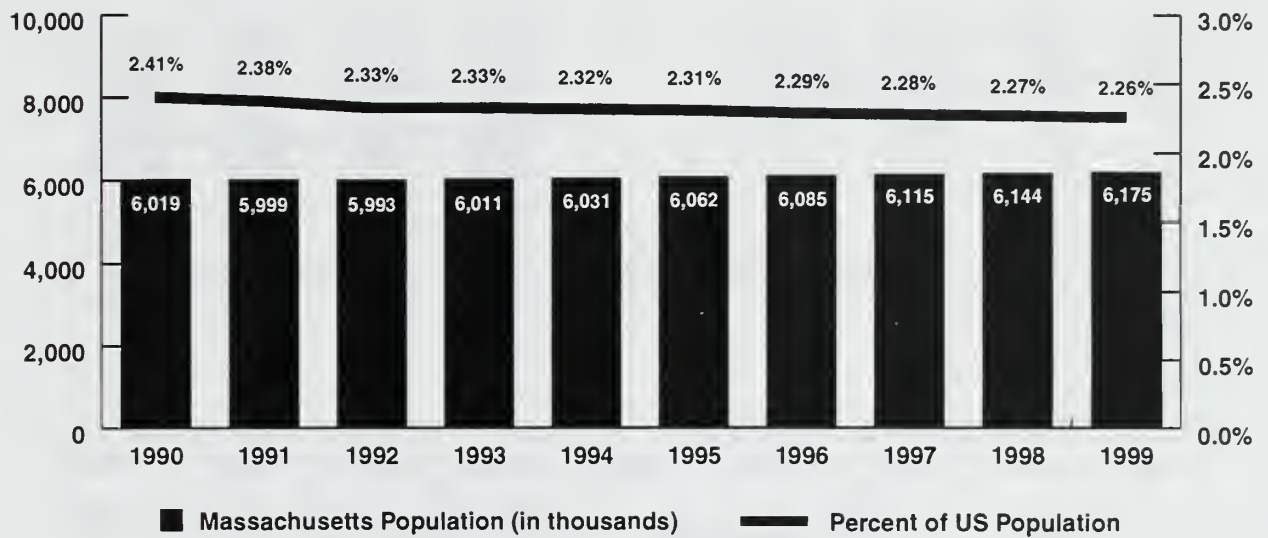
Sources: "NIH Support to Institutions by State," National Institute of Health, <http://siik.nih.gov/public/cbz2zoz. @ www.states.fy9296>; 1990-1993 NIH funding data are estimated based on "NIH support to the Top 100 Cities," <http://siik.nih.gov/public/cbz2zoz. @ www.cities.top100>; "State Population Estimates: Annual Time Series, July 1, 1990 to July 1, 1999, US Bureau of Census, [www.census.gov/population/estimates/state/st-99-3.txt](http://www.census.gov/population/estimates/state/st-99-3.txt)

Note: These numbers have not been adjusted for inflation.

**Figure 1.5**

- In 1999, Massachusetts trailed only California in the total dollar amount of medical research funding received from NIH (not shown). Massachusetts ranks first, however, when this funding is measured per capita. Per capita funding was also far above the national average in 1999, \$219 in Massachusetts versus \$47 in the US overall.
- Per capita NIH funding increased substantially for Massachusetts in the 1990s from \$118 in 1990 to \$219 in 1999, an 86% increase, compared to a 68% increase for the nation overall in the same period.

## Massachusetts Population and Percent of US Population (1990-1999)

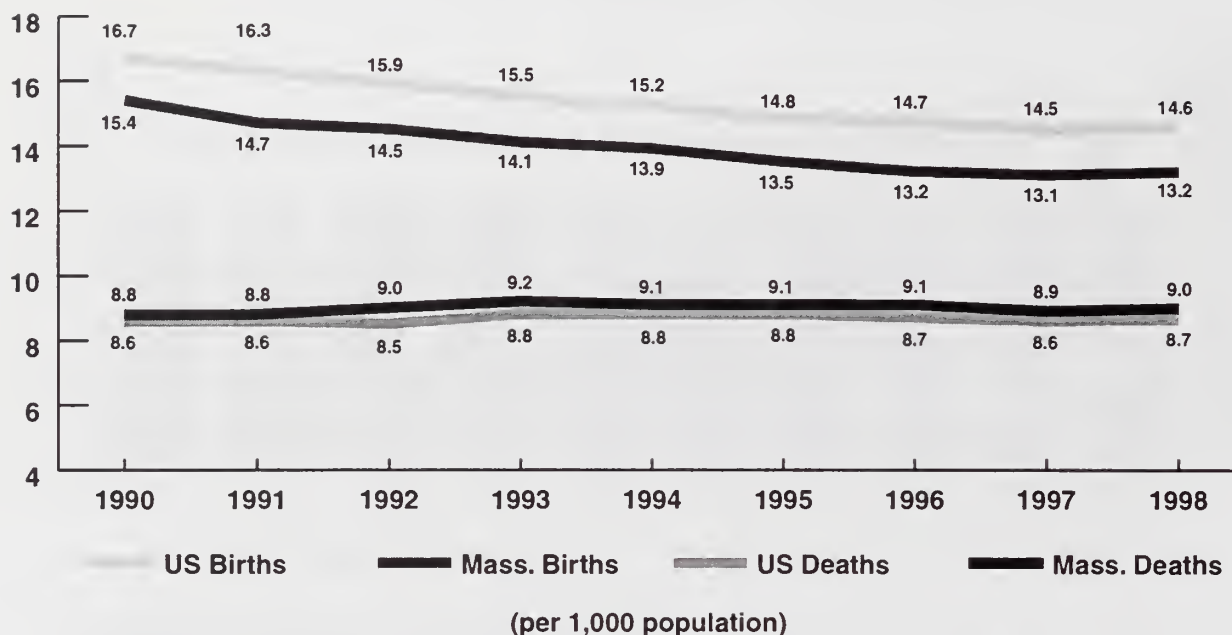


Source: "State Population Estimates: Annual Time Series, July 1, 1990 to July 1, 1999," US Bureau of Census, [www.census.gov/population/estimates/state/st-99-3.txt](http://www.census.gov/population/estimates/state/st-99-3.txt)

**Figure 1.6**

- Massachusetts experienced a small population growth of 2.6% in the 1990s. Since this growth rate was smaller than the national average, the share of the Massachusetts population relative to total US population diminished over the decade.

## Births and Deaths per 1,000 Population in the US and Massachusetts (1990-1998)

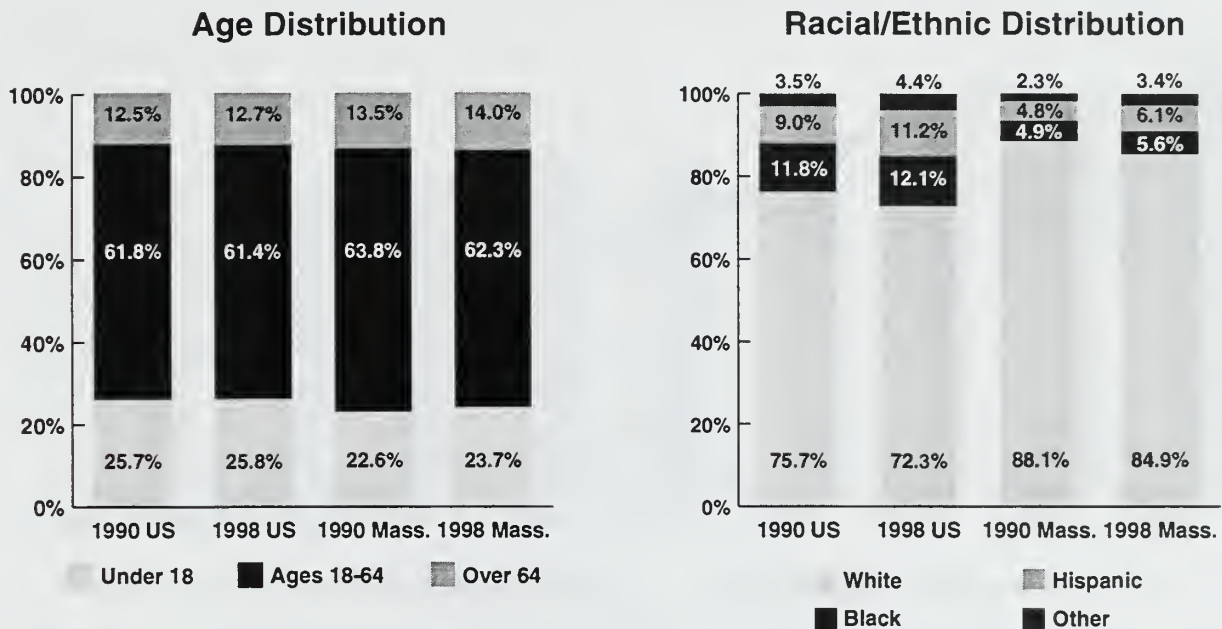


Sources: *Health, United States* (various years), US Department of Health and Human Services; *Advance Data Births 1998* and *Advance Data Deaths 1998*, Massachusetts Department of Public Health; "State Population Estimates: Annual Time Series, July 1, 1990 to July 1, 1999," US Bureau of Census, [www.census.gov/population/estimates/state/st-99-3.txt](http://www.census.gov/population/estimates/state/st-99-3.txt)

**Figure 1.7**

- Net growth in the Massachusetts population slowed over the last decade. The population death rate was relatively stable, while the birth rate gradually decreased.
- Although these trends were consistent with the national average, Massachusetts had a lower birth rate compared to the nation, but a slightly higher death rate. As a result, by the end of the decade, Massachusetts residents comprised a smaller share of the US population (see Figure 1.6 on page 11).

## Population Distribution by Age, Race/Ethnicity in the US and Massachusetts (1990-1998)

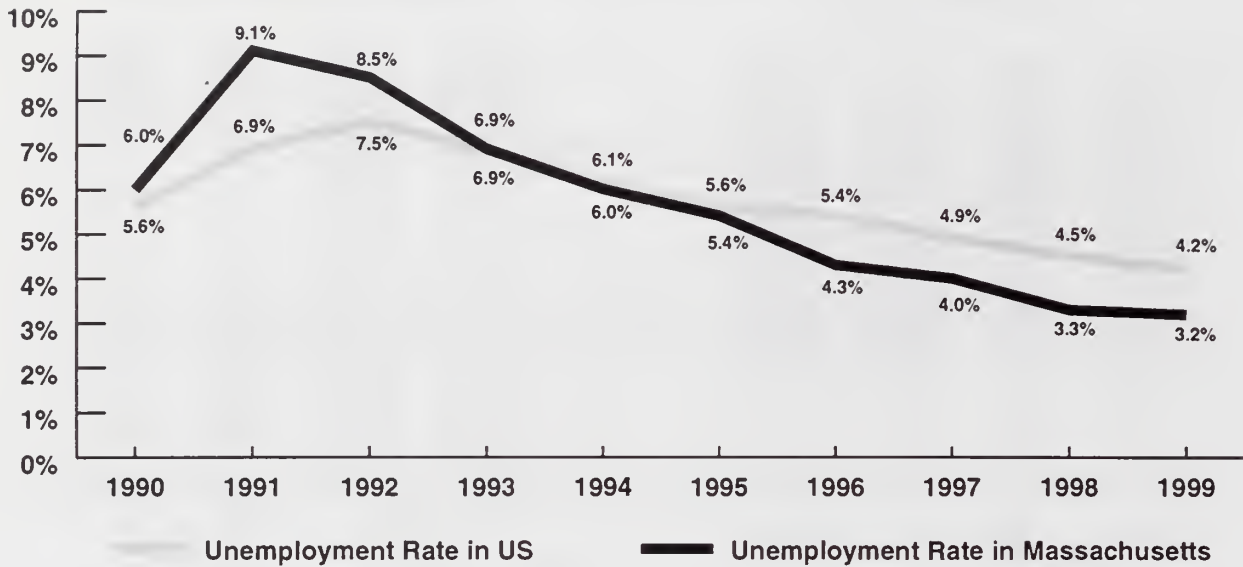


Sources: "Population Estimates for the US, Regions, and States by Selected Age Groups and Sex: Annual Time Series, July 1, 1990 to July 1, 1998," US Bureau of Census, [www.census.gov](http://www.census.gov); "Population of States by Race and Hispanic Origin: April 1, 1990," [www.census.gov](http://www.census.gov); "Population Estimates for States by Race and Hispanic Origin: July 1, 1998," [www.census.gov](http://www.census.gov)

**Figure 1.8**

- The age distribution of the Massachusetts population was relatively stable over the last decade, but those under age 18 comprised a smaller share of the state population while those over age 64 comprised a larger share than the national average (see Figure 4.6 on page 70).
- Massachusetts had a significantly higher white population than the nation overall. The minority population in all categories increased in Massachusetts from 12% of the total state population in 1990 to 15% in 1998. The Hispanic population became larger than the non-Hispanic black population in 1998, 6.1% of the total state population versus 5.6%.

## Unemployment Rate in the US and Massachusetts (1990-1999)



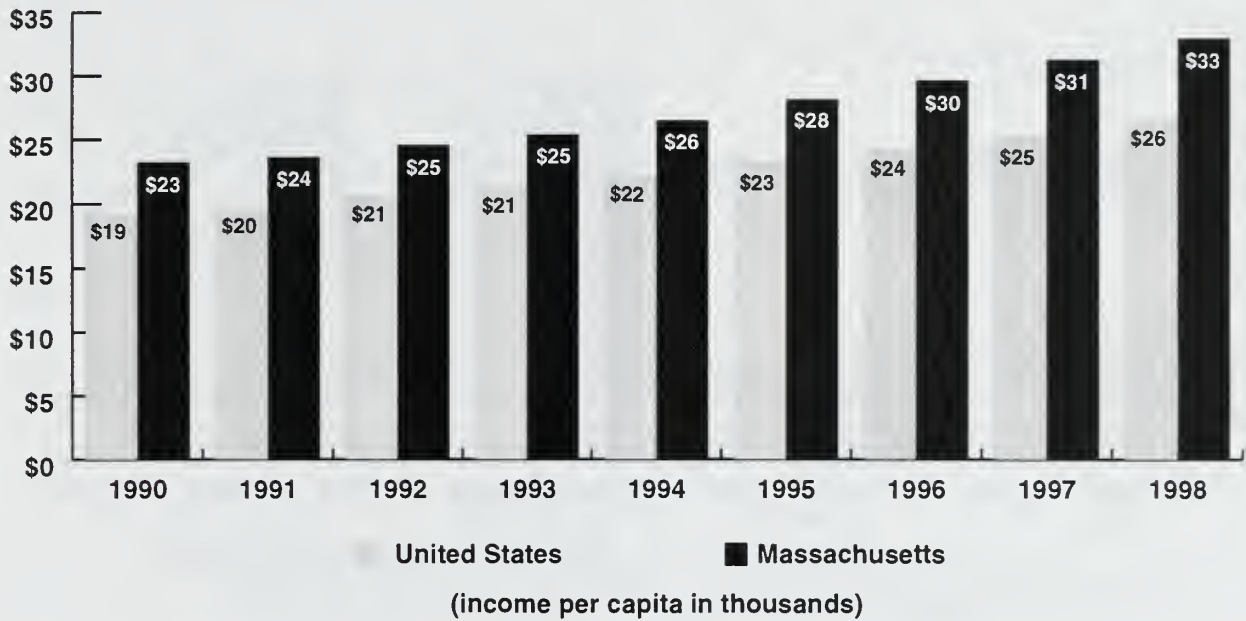
Sources: "Labor Force Statistics from the Current Population Survey," US National Data, US Department of Labor, Bureau of Labor Statistics; "Local Area Unemployment Statistics: Massachusetts," <http://stats.bls.gov/top20.html>

**Figure 1.9**

- Since 1991, the unemployment rate in Massachusetts declined consistently from 9.1% in 1991 to 3.2% in 1999. Although Massachusetts began the decade with an unemployment rate higher than the national average, by the end of the decade the Massachusetts unemployment rate was one percent lower.



### Personal Income per Capita in the US and Massachusetts (1990-1998)



Source: "Summary Personal Income and Disposable Personal Income 1969-98," US Department of Commerce, Bureau of Economic Analysis, [www.bea.doc.gov](http://www.bea.doc.gov)

Note: These numbers have not been adjusted for inflation.

**Figure 1.10**

- Per capita personal income gradually increased by 41% in Massachusetts over the 1990s. This rate of increase was slightly higher than the national trend, a 38% increase from \$19,156 in 1990 to \$26,482 in 1998.

## Poverty Rate in the US and Massachusetts (1990-1998)

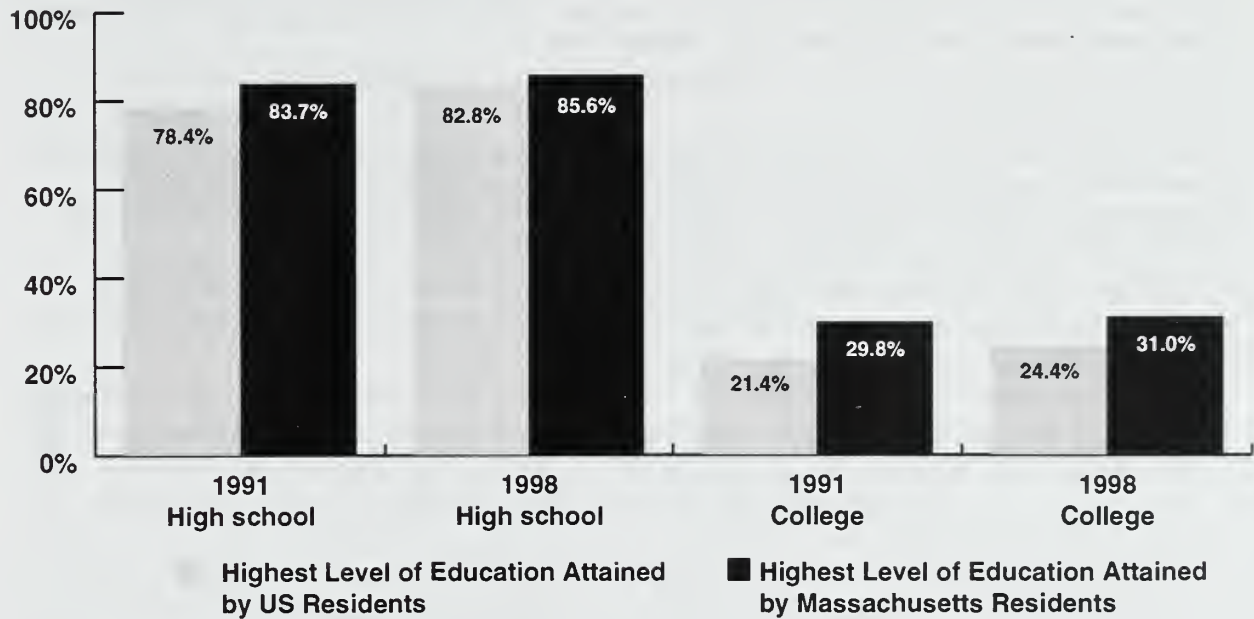


Sources: "Poverty Status of People, by Family Relationship, Race and Hispanic Origin: 1959 to 1998," US Bureau of Census, [www.census.gov/income/histpov/hstpov02.txt](http://www.census.gov/income/histpov/hstpov02.txt);  
"Number of Poor and Poverty Rate, by State: 1980-1998," [www.census.gov/income/histpov/hstpov21.txt](http://www.census.gov/income/histpov/hstpov21.txt)

**Figure 1.11**

- Although the unemployment rate dropped substantially and personal income increased in Massachusetts over the 1990s, the state's poverty rate did not show a substantial decline until 1997 (from 12.2% in 1997 to 8.7% in 1998).
- Massachusetts had a lower poverty rate than the national average throughout the 1990s. This difference became quite substantial in 1998, 8.7% versus 12.7% nationally.

## Highest Level of Education Attained by Persons Ages 25 and Over in the US and Massachusetts (1991 and 1998)



Sources: "Educational Attainment in the United States: March 1991 and 1990" (table number P20-462) and March 1998 update of this table, US Bureau of Census, [www.census.gov/population/www/socdemo/education/p20-462.html](http://www.census.gov/population/www/socdemo/education/p20-462.html)

**Figure 1.12**

- During the 1990s, the proportion of Massachusetts adults (ages 25 and over) who received a high school or, particularly, college level education was higher than the national average.
- There was a very small improvement (smaller than in the US as a whole) in the proportion of Massachusetts population who graduated from high school or college in the 1990s.

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## Endnotes for Chapter 1: Setting the Stage

1. The specific health care expenditure measure used in this report is defined as personal health care expenditures (PHCE) in the State Health Expenditure Accounts (SHEA).<sup>5</sup> This measure includes spending on therapeutic goods or services rendered to treat or prevent a specific disease or condition in a person, but leaves out some other spending categories, such as medical research and construction. The comprehensive total health care expenditure data at the state level are not currently available. All the monetary measures used in this report are not inflation adjusted.
2. Health Care Financing Administration (HCFA), Office of the Actuary, National Health Statistics Group, "State Health Expenditures, 1980-1998," 2000
3. The specific employment measure used in this report covers various health services fields in both private and public sectors, such as hospitals, physician offices, and long term care facilities. This measure has left out some health care related employment, such as health insurance industry, drug and medical instruments industries, and biomedical companies. It is difficult to clearly identify these employment areas under the current statistical system.
4. Standard & Poor's DRI, *The Massachusetts Health-Care Industry: A Stalled Engine of Economic Growth*, April 2000.
5. Levit, K. et al, *Health Care Financing Review*, "State Health Expenditure Accounts: Building Blocks for State Health Spending Analysis," Fall 1995.

# Chapter 2:

## Health Care Financing

**T**he United States is the only industrialized country that does not universally insure its citizens for health care. Those without insurance can usually still obtain care, but it may not be preventive, timely or optimal. Massachusetts has deliberately set out to expand the number of residents with coverage and throughout the decade has succeeded at having a lower rate of uninsurance than the United States as a whole. But even for those who are not covered, Massachusetts has an established mechanism for paying for free care at both community health centers

and hospitals which serves as a last resort safety net.

With one of the highest HMO penetration rates in the country, the financial health of our HMOs is of great concern. When HMOs uniformly began to report losses in the late 1990s there was widespread fear that our uniquely not-for-profit HMOs might not survive or might change to for-profit ownership. Considering the dismal financial status of the various types of care providers, the financial distress of HMOs rounded out a picture of an industry in trouble.

Insurance premiums are said to fluctuate in cycles and after being kept artificially low in the late 1990s, while HMOs sought market share, they are once again rising. Harvard Pilgrim Health Care sunk into receivership in early 2000, and many acknowledged that premiums had to rise. The health care system must be adequately funded—and people must be able to afford insurance.

### Health Insurance Coverage

- Figure 2.1    Percent of Non-Elderly Uninsured Residents in the US and Massachusetts (1990-2000) p. 21
- Figure 2.2    Number of Uninsured Acute Hospital Discharges and Percent of All Massachusetts Discharges (1990-1999) p. 22
- Figure 2.3    Allowable Cost and Payment to Hospitals and CHCs for Uncompensated Care in Massachusetts (1990-1999) p. 23
- Figure 2.4    Number of Mandated Health Insurance Benefits in the US and Massachusetts (1990 and 1998) p. 24

### Employment-Based Health Insurance

- Figure 2.5    Percent of Non-Elderly with Employer-Based Health Insurance in the US and Mass. (1990-1998) p. 25
- Figure 2.6    HMO Premiums, Medical Inflation and General Inflation in the US and Massachusetts (1990 and 1998) p. 26

*(continued on page 20)*



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## **Medicaid Enrollment**

Figure 2.7    Percent of Population with Medicaid Coverage in the US and Massachusetts (1990-1998) p. 27

## **Managed Care**

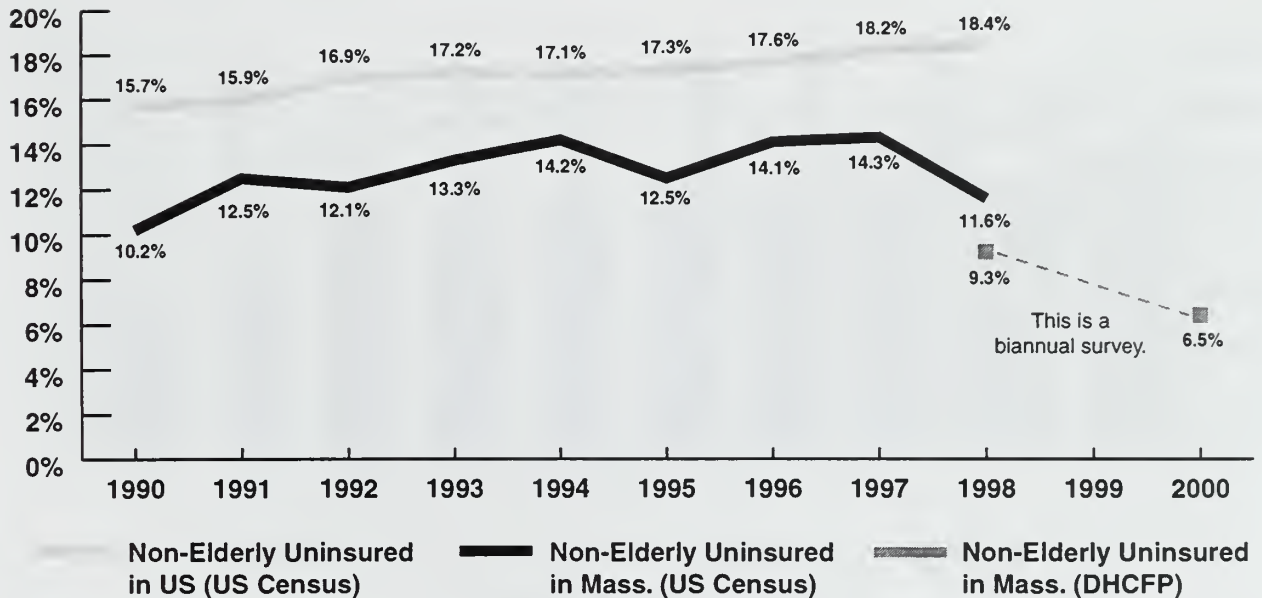
Figure 2.8    HMO Penetration Rate in the US and Massachusetts (1990-1998) p. 28

Figure 2.9    Managed Care Penetration Rate of the Medicare Population in the US and Massachusetts (1990-1999) p. 29

Figure 2.10   Managed Care Penetration Rate of the Medicaid Population in the US and Massachusetts (1992-1998) p. 30

Figure 2.11   Median HMO Profit Margin in the US and Massachusetts (1991-1998) p. 31

## Percent of Non-Elderly Uninsured Residents in the US and Massachusetts (1990-2000)



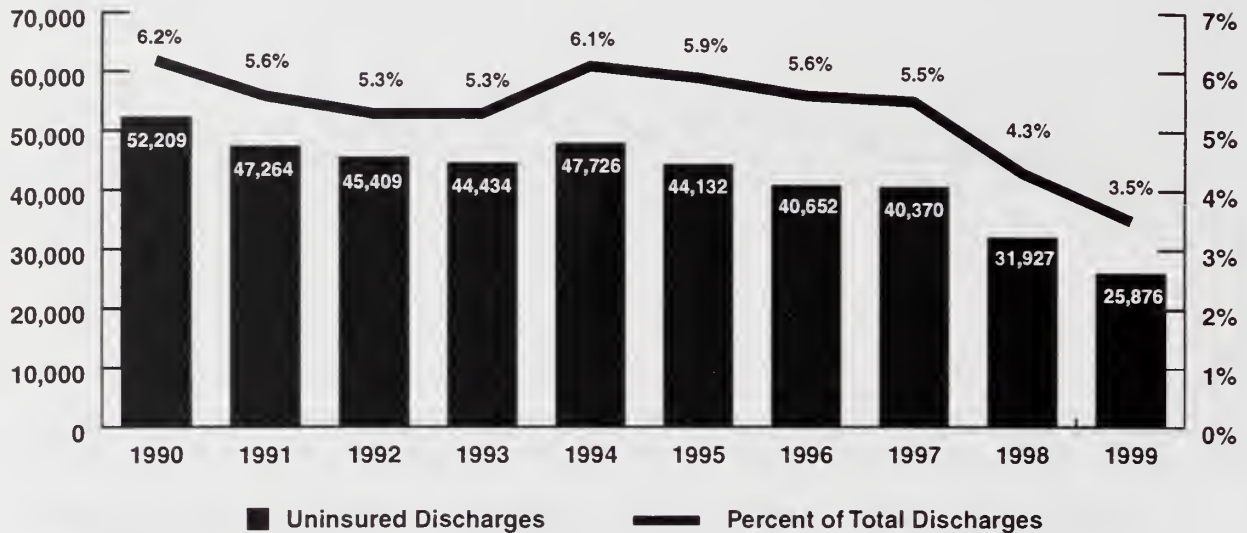
Source: "Health Insurance Coverage Status and Type of Coverage by State, Persons Under 65: 1987-1998," Table HI-6, US Bureau of Census; Survey of Health Insurance Status of Massachusetts Residents, 1998 and 2000, Division of Health Care Finance and Policy

Notes: Complete US Census data were unavailable for 1999 and 2000. The DHCFP survey is biannual.

**Figure 2.1**

- According to the US Census, between 1990 and 1998, the proportion of Massachusetts residents who were uninsured in the state rose from 10.2% to 11.6% despite a steady decrease in the unemployment rate since 1992 (see Figure 1.9 on page 14). Even with this increase, however, Massachusetts' uninsurance rate was consistently substantially below the national rate.
- From 1997 to 1998 there was a significant drop in the number of uninsured, coinciding with a dramatic decline in the poverty rate in Massachusetts (see Figure 1.11 on page 16), and an increase in the percent of the population with Medicaid coverage (see Figure 2.7 on page 27).
- In 1998, the Division of Health Care Finance and Policy initiated a statewide survey of the health insurance status of state residents, and repeated it in 2000. The results indicate that approximately 9.3% and 6.5% respectively of all non-elderly Massachusetts residents were uninsured at the time of the interviews.<sup>1</sup> For a variety of technical reasons, DHCFP reports a lower and more accurate number of uninsured; it is widely agreed that the US census methodology overestimates the number of uninsured nationwide.

## Number of Uninsured Acute Hospital Discharges and Percent of All Massachusetts Discharges (1990-1999)



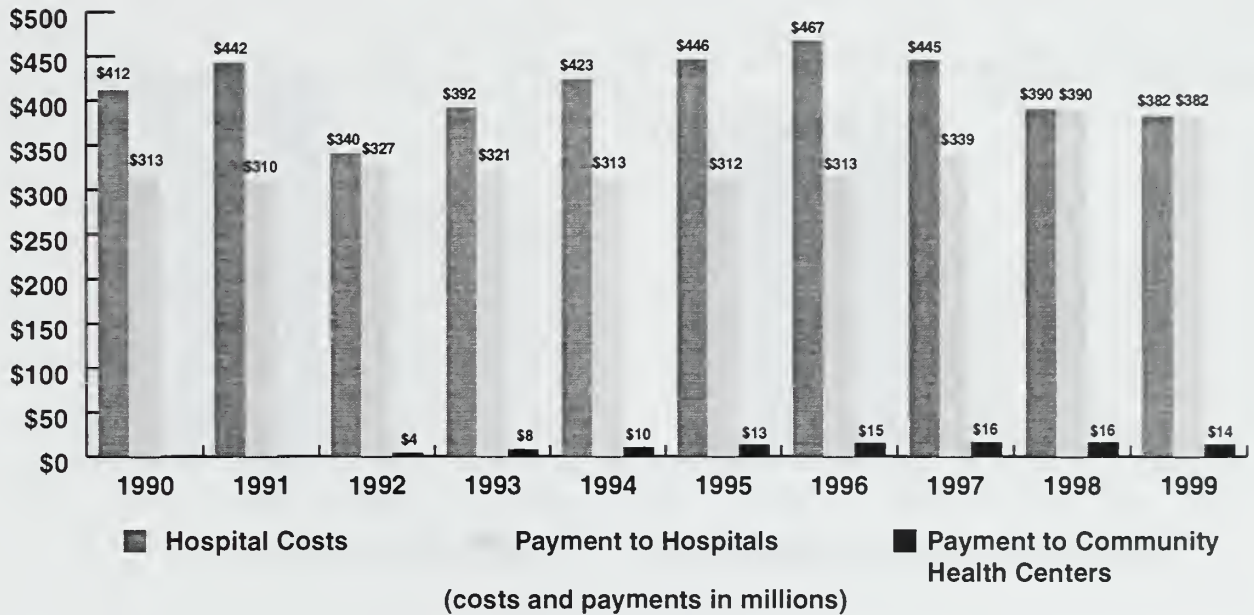
Source: Hospital discharge data, Massachusetts Division of Health Care Finance and Policy

Note: Uninsured includes self-pay and free care payer categories.

**Figure 2.2**

- During the 1990s, the number of uninsured acute hospital discharges decreased by 50%, and the uninsured share of total discharges decreased from 6.2% to 3.5%.
- All acute hospital admissions were affected by the shifting of medical care to ambulatory settings, but an additional factor affecting hospitalizations of the uninsured in 1998 was a 2.7% drop in the uninsured in that year, probably due to the expansion of Medicaid programs (see Figure 2.1 on page 21 and 2.7 on page 27).

## Allowable Cost and Payment to Hospitals and CHCs for Uncompensated Care in Massachusetts (1990-1999)



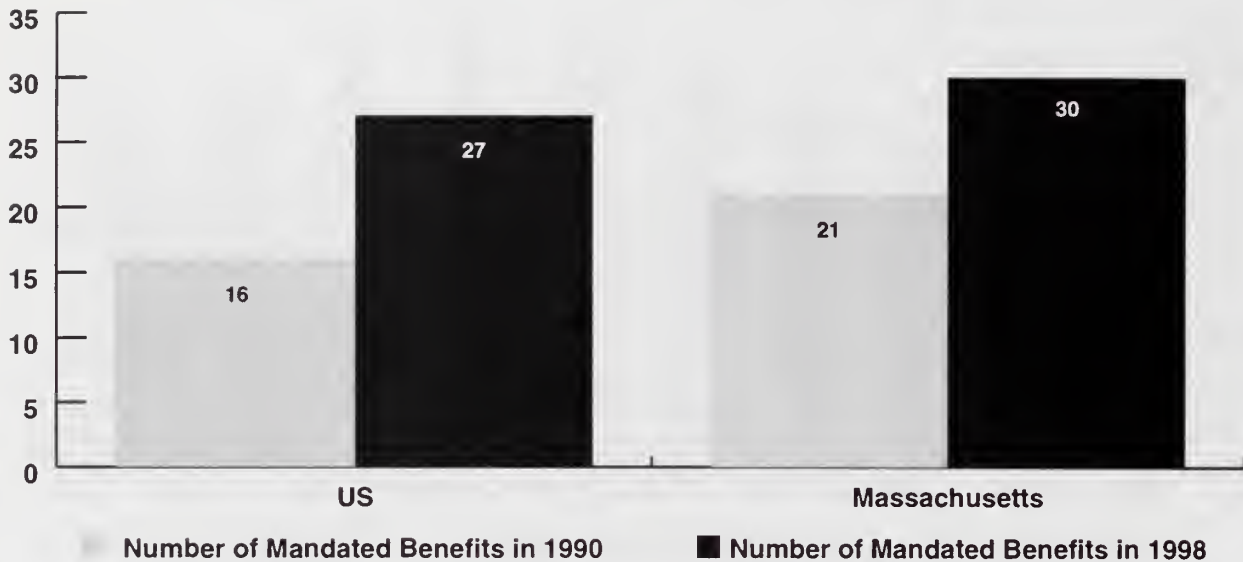
Sources: *Uncompensated Care Pool PFY99 Annual Report*, March 2000 and "Community Health Center Payment Voucher Supplemental Form," Massachusetts Division of Health Care Finance and Policy

Note: These numbers have not been adjusted for inflation.

**Figure 2.3**

- Massachusetts' system for funding hospital costs for uncompensated care relies on several revenue sources, including both private and public payers.
- As a result of policy changes in the financing and management of the Uncompensated Care Pool, as well as expansion in state supported health care coverage programs, beginning in 1998 the Pool was funded adequately to cover all charges to it. Prior to this time, uncompensated care charges were greater than the dollars available to fund such care, resulting in a shortfall.
- Since 1992, the Uncompensated Care Pool has paid community health centers (CHCs) for the uncompensated care they provide. Unlike hospitals, the Pool pays CHCs based on a standard fee schedule. Also unlike hospitals, CHC payments from the Pool are not reduced when there is a shortfall in Pool funds, therefore, there is no difference between allowable costs and payments for CHCs as there is for hospitals.

## Number of Mandated Health Insurance Benefits in the US and Massachusetts (1990 and 1998)



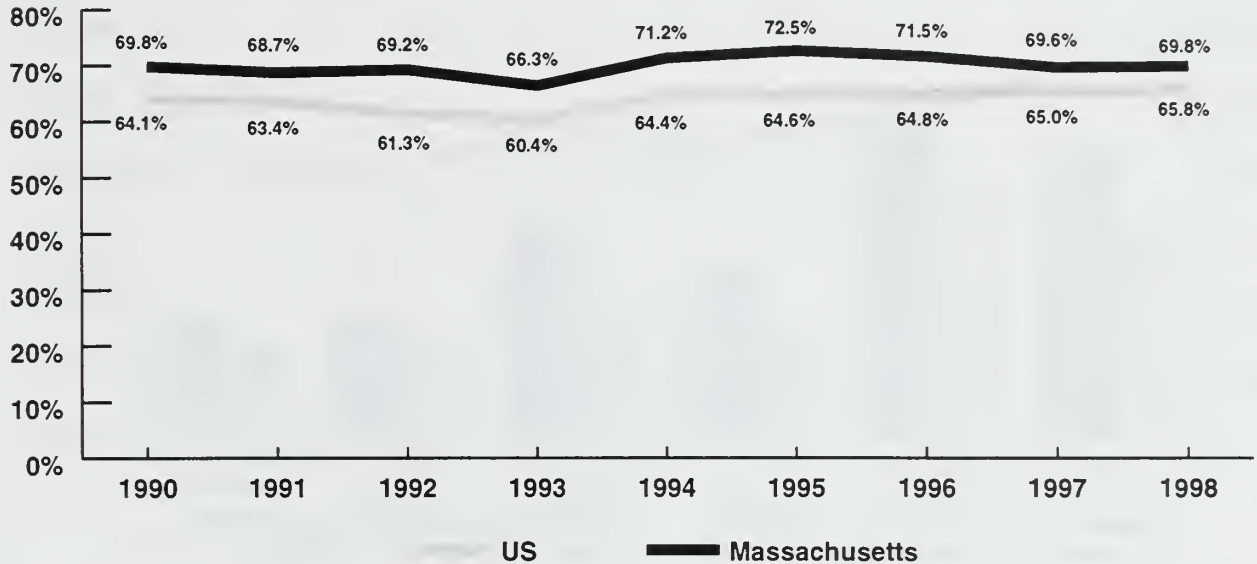
Source: *State Legislative Health Care Insurance Issues: 1999 Survey of Plans*, Blue Cross Blue Shield Association

**Figure 2.4**

- All 50 states have laws requiring employers that offer group health plans to include minimum specific benefits, although, according to federal law, these mandates do not apply to self-funded ERISA plans, primarily offered by large companies.
- In 1990, Massachusetts ranked 7th (not shown) in the country with 21 mandated benefits. Maryland (30 benefits) and Utah (28 benefits) led the country.<sup>2</sup> Nationally, the average number of mandated benefits per state was 16. By 1998, Massachusetts had 30 mandates, ranking 14th in the country. Maryland (48 benefits) and Florida (44 benefits) were the top two states, far ahead of the national average of 27 benefits per state.
- The number of mandates alone, however, is not an indicator of premium costs. Some benefits add more cost to premiums than others.
- Mandated health benefits offer the advantage of ensuring that individuals with insurance have access to coverage for specific benefits. A disadvantage is that benefit mandates may increase the cost of insurance coverage, thereby possibly raising the number of uninsured.



## Percent of Non-Elderly with Employer-Based Health Insurance in the US and Massachusetts (1990-1998)

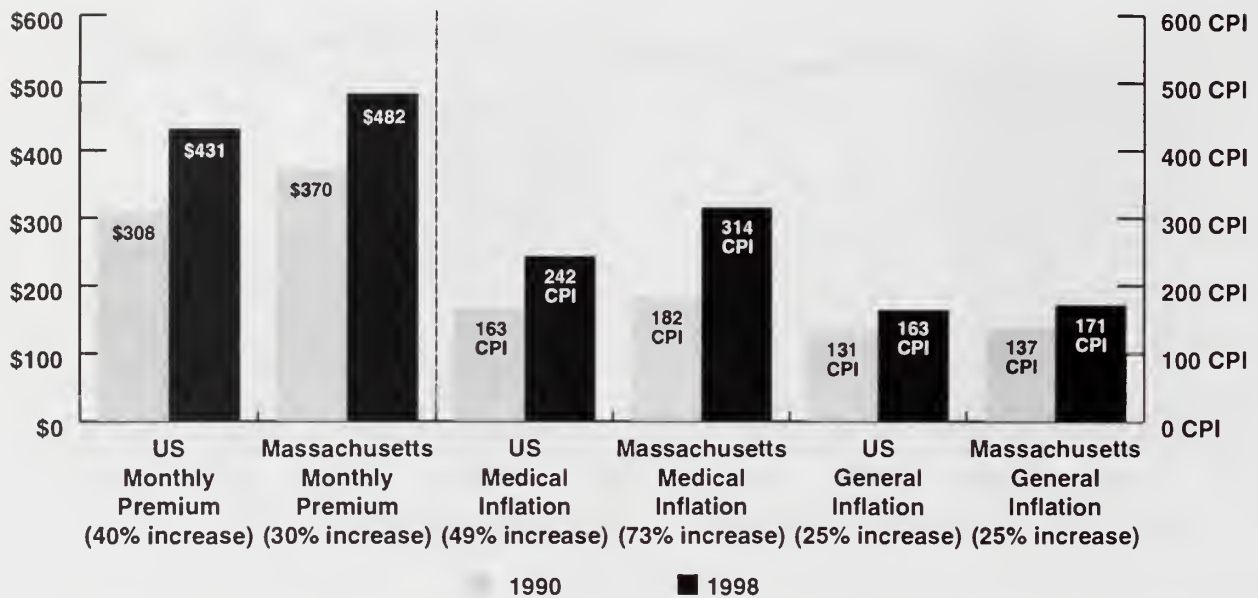


Source: "Health Insurance Coverage Status and Type of Coverage by State, Persons Under 65: 1987-1998," Table HI-6, US Bureau of Census

**Figure 2.5**

- In 1990 and 1998, the proportion of Massachusetts residents with employment-based insurance was identical: 69.8% but peaked at 72.5% in 1995. Some of this fluctuation followed the implementation of Chapter 495, passed in 1991, which introduced various rating restrictions and led to higher premiums. By the second half of the decade, a stronger economy (see Figure 1.9 on page 14) and purchaser pressure resulted in a deceleration in premium increases, an incentive for employers to offer, and employees to accept, health insurance. However, the rate of employment-based insurance is also affected by the proportion of service jobs (often not accompanied by benefits) in a state's economy.
- Throughout the decade, Massachusetts had a larger proportion of its population covered by employer-based health insurance than the rest of the nation.

## HMO Premiums, Medical Inflation and General Inflation in the US and Massachusetts (1990 and 1998)



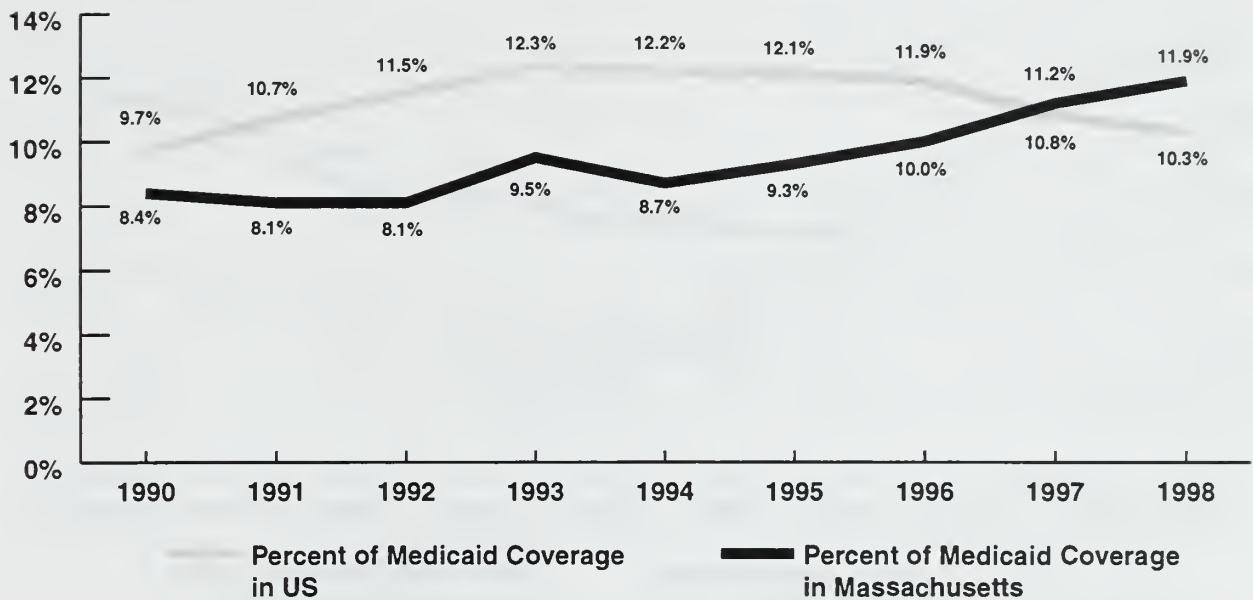
Sources: *Health, United States, 1999*, US Department of Health and Human Services; *HMO Rate Analysis: 1998 Spending, Unit Cost and Utilization and Premium Trends for Six HMOs in Massachusetts: 1990-1994*, Massachusetts Division of Health Care Finance and Policy

Note: These numbers have not been adjusted for inflation.

**Figure 2.6**

- The average (of family and individual rate) monthly Massachusetts health insurance premium increased less than that of average premiums throughout the country and significantly less than the rate of medical inflation in Massachusetts.
- Throughout the ten years while general inflation in Massachusetts was identical to that of the US as a whole, medical inflation in Massachusetts was significantly higher than medical inflation in the US.

## Percent of Population with Medicaid Coverage in the US and Massachusetts (1990-1998)

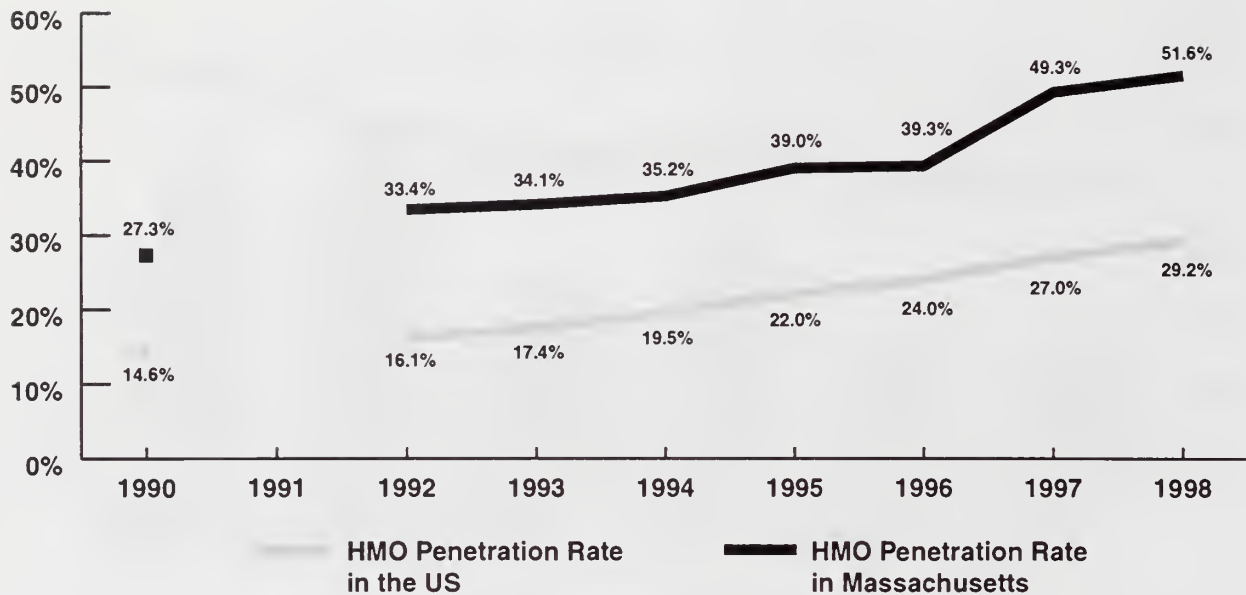


Source: "Health Insurance Coverage Status and Type of Coverage by State, Persons Under 65: 1987-1998," Table HI-6, US Bureau of Census

**Figure 2.7**

- Between 1990 and 1998, the number of Medicaid enrollees in the state rose considerably due to deliberate expansion and successful outreach by MassHealth. The percentage of Massachusetts residents enrolled in Medicaid increased from 8.4% (503,000 enrollees) in 1990 to 11.9% (732,000 enrollees) in 1998. According to the latest count by the Division of Medical Assistance (not shown), they now insure over 900,000 Massachusetts residents.
- Between 1990 and 1998, national Medicaid enrollment increased slightly, having peaked at 12.3% of the population in 1993. National welfare reform, enacted in 1996, lowered Medicaid enrollment, although many former welfare recipients are still legally entitled to Medicaid benefits.
- Until 1997, the percentage of the Massachusetts population enrolled in Medicaid was below the national average. Policy changes in 1997 that promoted increased Medicaid enrollment in Massachusetts included the approval of a federal 1115 waiver demonstration project and the Children's Health Insurance Program (CHIP), which became a model for the rest of the country.

## HMO Penetration Rate in the US and Massachusetts (1990-1998)



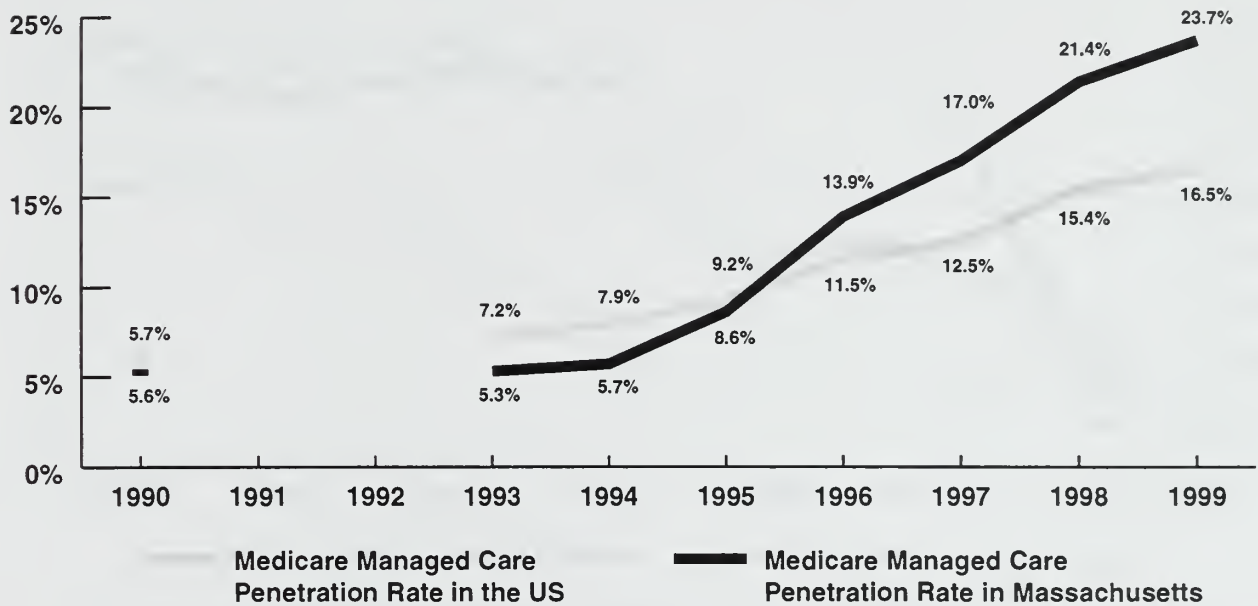
Source: *Reforming the Health Care System: State Profiles (1990-1999)*, American Association of Retired People (AARP)

Notes: Complete data were unavailable for 1991. Includes Medicaid, Medicare and private commercial members.

**Figure 2.8**

- Massachusetts has the highest HMO penetration rate in the country, 51.6% in 1998. In 1990, Massachusetts exceeded the national penetration rate by almost 13%, and this margin increased to 22% by 1998.
- Over the decade, there was consolidation in the HMO market: in 1990, membership of six HMOs licensed in the state comprised 80% of the market. By 1998, three HMOs (HMO Blue, Harvard Pilgrim Health Care and Tufts Associated Health Plans, Inc.) boasted 81% of HMO membership (not shown).<sup>3</sup>

## Managed Care Penetration Rate of the Medicare Population in the US and Massachusetts (1990-1999)



Sources: *Reforming the Health Care System: State Profiles* (1990-1999), American Association of Retired People (AARP); *Health, United States, 1999*, US Department of Health and Human Services

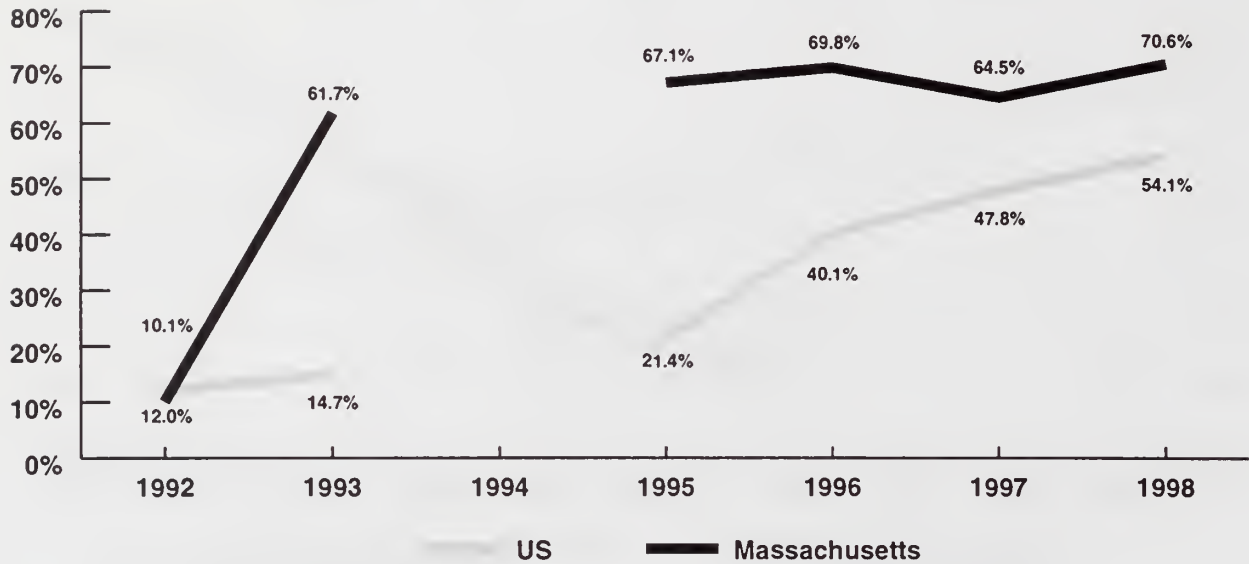
Note: Complete data were unavailable for 1991 and 1992.

**Figure 2.9**

- Following the pattern set by the commercial population, the managed care penetration rate for Medicare enrollees is higher in Massachusetts than the national average and has been consistently higher since 1996.
- While 13 Massachusetts plans participated in the Medicare HMO program in 1995, disagreement over satisfactory capitation rates has since lowered that number to 5 (not shown).



## Managed Care Penetration Rate of the Medicaid Population in the US and Massachusetts (1992-1998)



Source: *Reforming the Health Care System: State Profiles* (annual reports 1993-1999), American Association of Retired People (AARP)

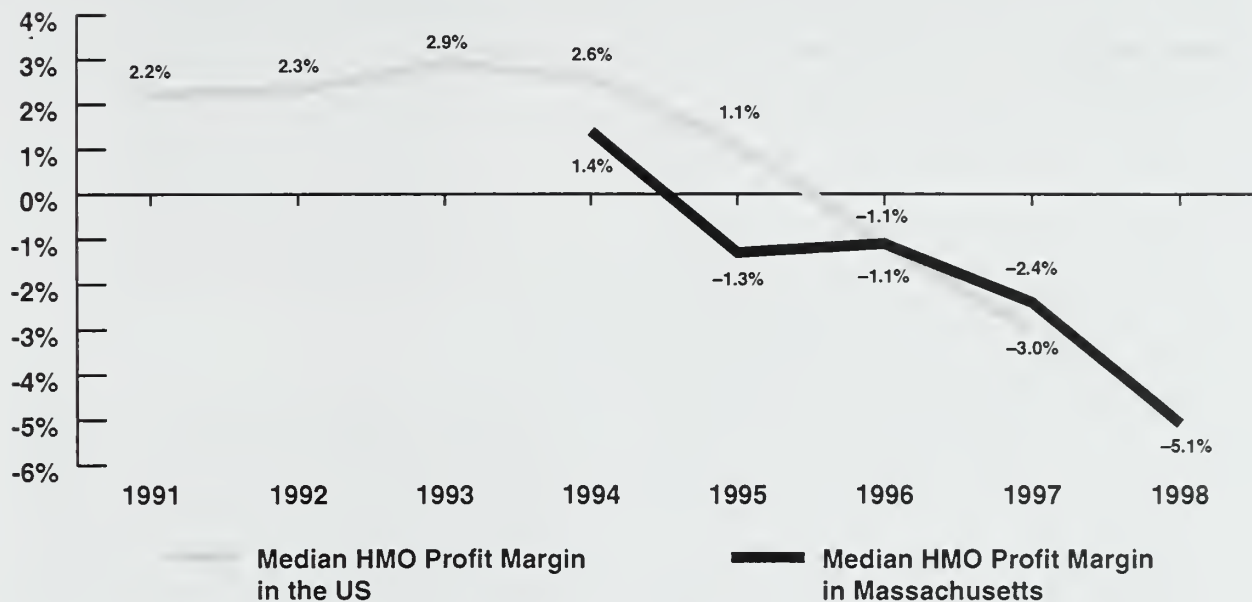
Notes: Complete data were unavailable for 1991 and 1994.

The Massachusetts penetration rate includes Medicaid beneficiaries enrolled in its managed Primary Care Clinician Program (PCCP).

**Figure 2.10**

- As with the commercial and Medicare populations, the managed care penetration rate for Medicaid enrollees is higher in Massachusetts than the national average and has been substantially so since 1993.

### Median HMO Profit Margin in the US and Massachusetts (1991-1998)



Sources: *Financial Overview of the Managed Care Industry*, March 1999, Kaiser Family Foundation; Massachusetts Association of Managed Care Organizations

Notes: Complete Data were unavailable for 1991, 1992, 1993, and 1998. Some HMOs do business outside Massachusetts and their filings indicate profit or loss of company as a whole, rather than for the portion of income and expenses attributable to Massachusetts operations.

**Figure 2.11**

- From 1991 to 1994, national data indicate that HMOs experienced financial stability. Beginning in 1995, Massachusetts HMOs, followed by plans in the rest of the country, started to experience rapidly declining profit margins. By 1998, the median profit margin for Massachusetts plans had decreased to -5.1%.
- The market for HMO enrollment became increasingly competitive and plans merged, increasing pressure for expensive compatible data and financial systems. In addition, purchaser pressure to rein in premium costs contributed to declining plan profit margins. Some HMOs undertook costly and fruitless out-of-state expansions, which were largely abandoned (at great loss) by the end of the decade.
- The HMO industry's grim financial standing mirrors that of hospitals (see Figure 3.22 on page 57), nursing homes (see Figure 3.23 on page 58) and community health centers (see Figure 3.24 on page 59).

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## **Endnotes for Chapter 2: Health Care Financing**

1. Massachusetts Division of Health Care Finance and Policy, *Health Insurance Status of Massachusetts Residents*, October 1998.
2. National Conference of State Legislatures, Health Policy Tracking Service, "Mandated Benefits," May 5, 1999.
3. Massachusetts Division of Health Care Finance and Policy, *HMO Rate Analysis: 1997 Spending, Unit Cost, and Utilization*, September 1998.

# Chapter 3:

## Health Care Delivery System

**I**n many significant ways the health care delivery system in Massachusetts does not look like it did in 1990. The roles of the various stakeholders have blurred over the decade. Health care services are now less institutional, but more aligned into systems and care is dominated by a few huge players on both the finance side and the provider side. Among providers there was almost a Copernican revolution displacing hospitals as the perceived center of the universe, leaving in their place a number of different, usually less acute facilities. Hospitals are now used to provide more costly, intense services in shorter lengths of stay than ever before.

Hospitals, nursing homes and community health centers all experienced closures and system consolidation and ended the decade with fewer acute beds and buildings. In this industry as in so many others, bigness in one sector (i.e. insurers), begets bigness in others (hospitals, nursing homes, commu-

nity health centers, physician groups) as a way to counterbalance power and achieve efficiencies, but such benefits are often elusive as many found out by the close of the decade.

The composition of clinicians is changing as well. Data show that newly trained physicians are more likely to go into primary care than their predecessors but still not as likely as their counterparts throughout the United States. Massachusetts remains specialist heavy even as managed care tries to put primary clinicians at the center of a person's care.

The financial story of the three main types of institutional providers is troubling and Figure 2.11 on page 31, Median HMO Profit Margin, rounds out the picture. While somewhat different forces or actions hurt each of them, together they illustrate an under-funded system at risk of or already beginning to unravel.

Although certainly not the only factor explaining poor financial margins, pharmaceutical costs were selected to illustrate the mixed gift of every major advancement in health care. Per capita drug costs have exploded, but advancements in pharmacology have partially enabled our decreased dependence on hospitalization. Does one cost offset the other savings? If not, what is an equitable financing mechanism?

### Health Care Resources

Figure 3.1 Number of Acute Hospitals and Operating Beds in Massachusetts (1990-1999) p. 35

Figure 3.2A Massachusetts Acute Hospitals Currently Operating and Closures/Conversions (1990-1999) p. 36

Figure 3.2B Boston Area Acute Hospitals Currently Operating and Closures/Conversions (1990-1999) p. 37

*(continued on page 34)*

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- Figure 3.3 Number of Nursing Homes and Number of Operating Beds in Massachusetts (1990-1999) p. 38
- Figure 3.4 Number of Community Health Centers and Total Visits in Massachusetts (1990 and 1999) p. 39
- Figure 3.5 Primary Care Physicians and Specialist Physicians per 10,000 Population in the US and Massachusetts (1990 and 1998) p. 40
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- Figure 3.7 Distribution of 1st Year Medical Students by Gender and Race/Ethnicity in the US and Massachusetts (1989-90 and 1998-99) p. 42

## **Systemic Changes**

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- Figure 3.9 Distribution of Medicare Expenditures in Massachusetts (1990 and 1997) p. 44
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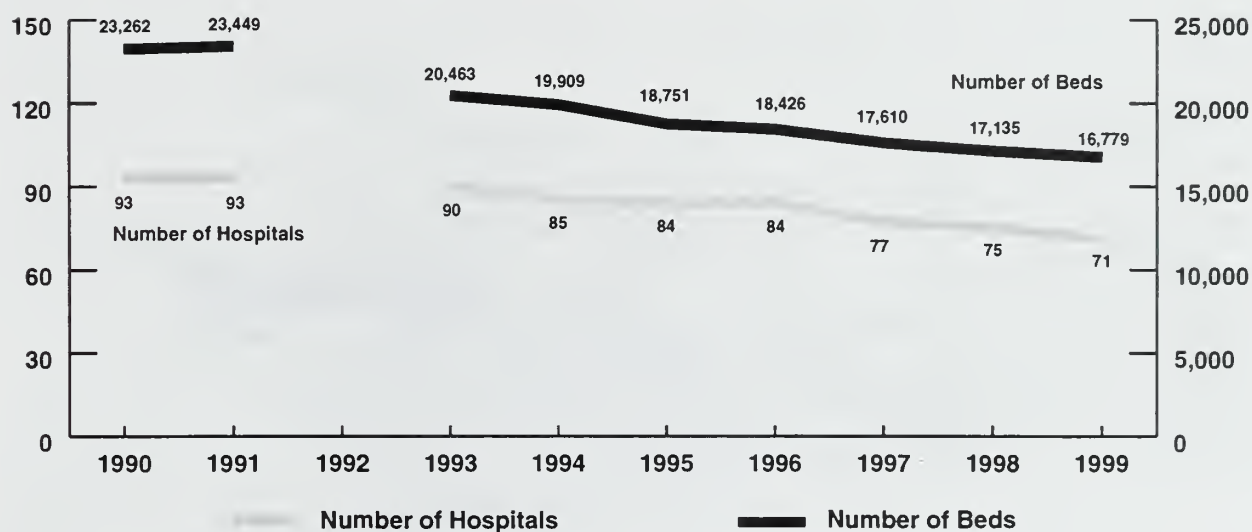
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## Number of Acute Hospitals and Operating Beds in Massachusetts (1990-1999)



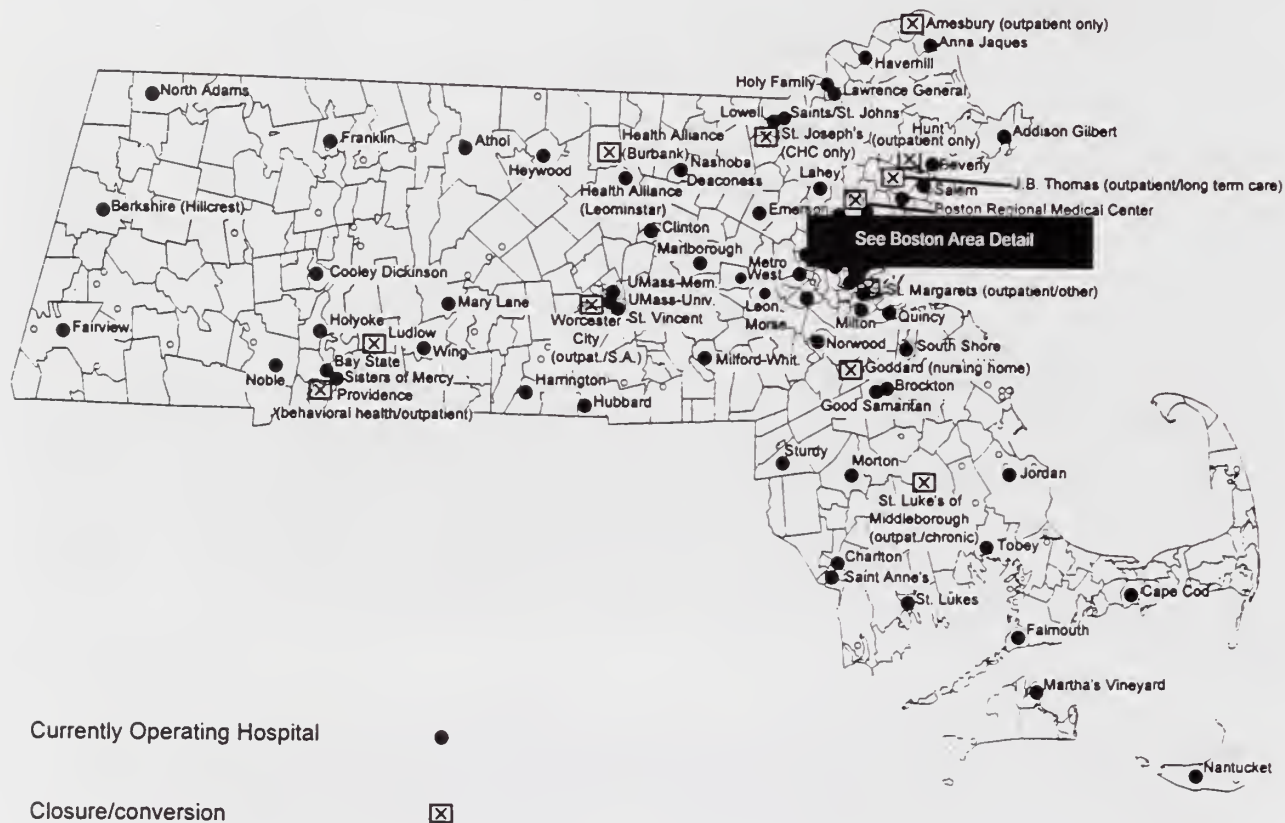
Source: "Hospital Statement for Reimbursement, DHCFP 403," Massachusetts Division of Health Care Finance and Policy

Note: Complete data were unavailable for 1992.

**Figure 3.1**

- Market forces and changing health care financing and service delivery practices have led to dramatic changes in the Massachusetts hospital infrastructure over the last decade: the total number of acute care hospitals fell 24% from 93 to 71, and the number of operating beds fell 28%.
- Since the Massachusetts population changed only slightly during this time period, beds per capita decreased significantly.

## Massachusetts Acute Hospitals Currently Operating and Closures/Conversions (1990-1999)



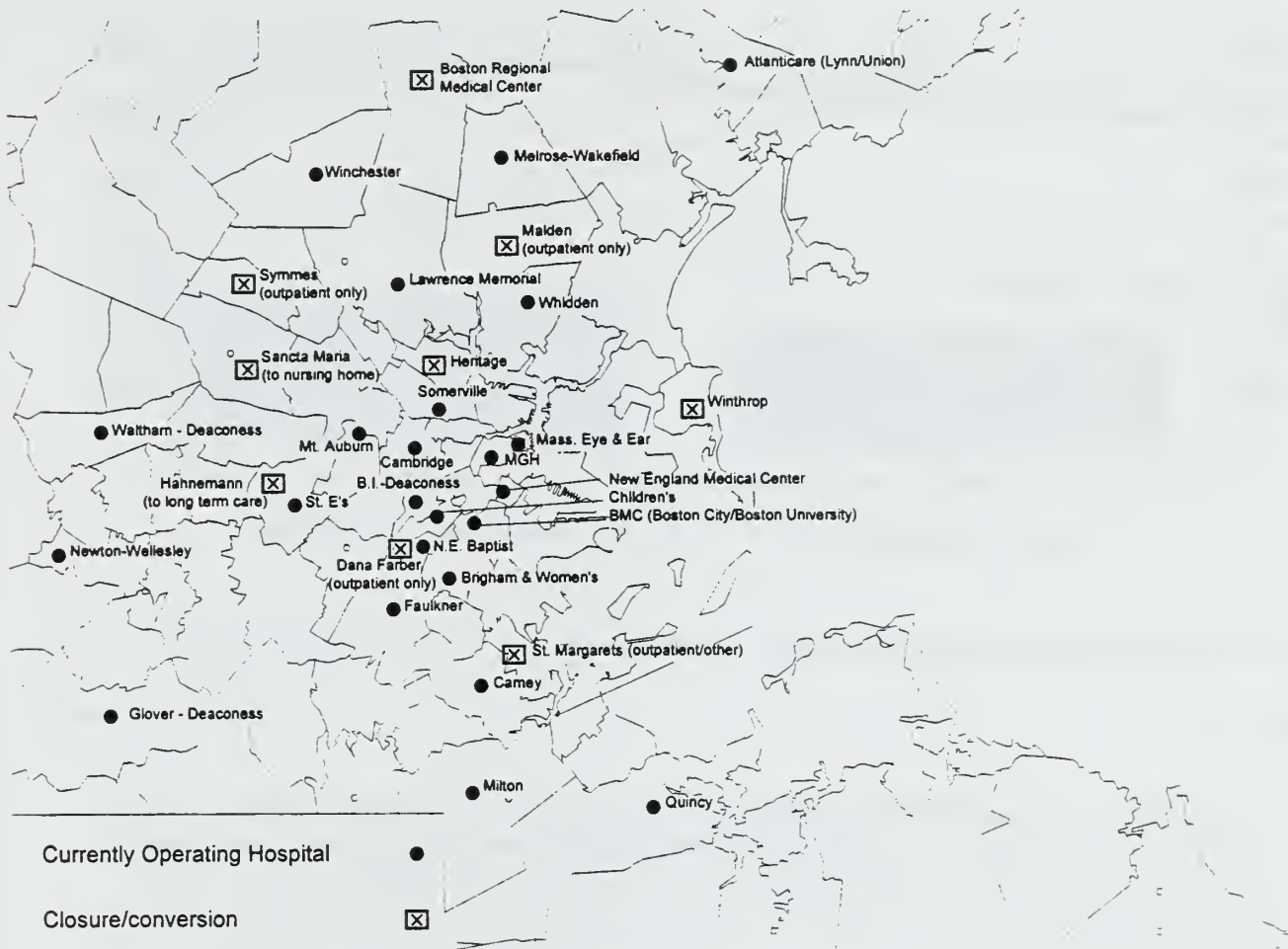
Sources: Massachusetts Division of Health Care Finance and Policy; Massachusetts Hospital Association website: [www.mhalink.org](http://www.mhalink.org)

Note: See Appendix III on page 93, Appendix IV on page 95 and Appendix V on page 97.

**Figure 3.2A**

- In addition to the many hospitals that closed, many others converted to long term care, outpatient facilities or offer only emergency services.

## Boston Area Acute Hospitals Currently Operating and Closures/Conversions (1990-1999)



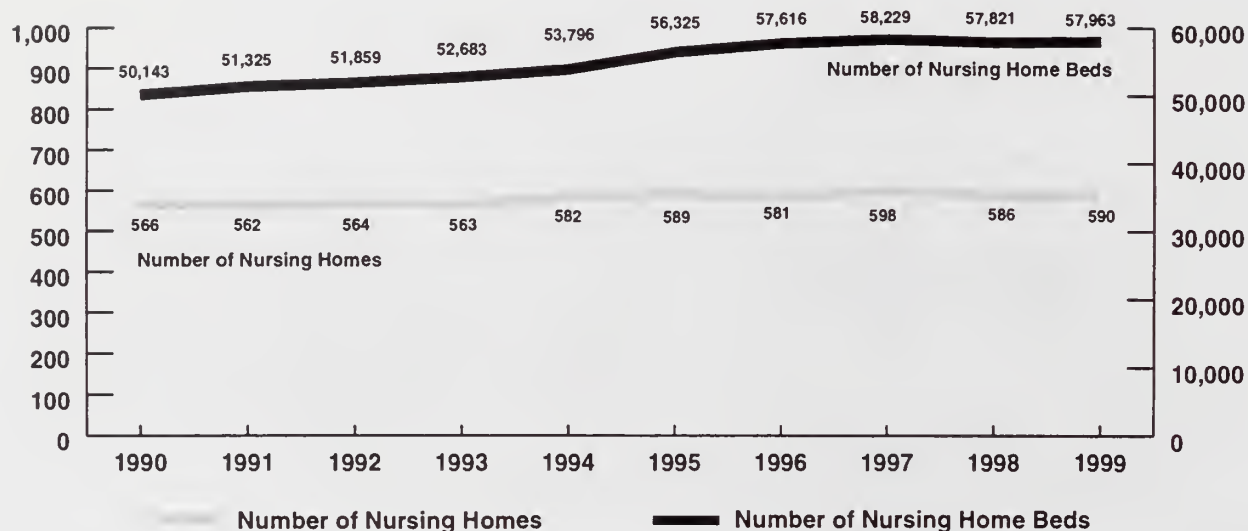
Sources: Massachusetts Division of Health Care Finance and Policy; Massachusetts Hospital Association website: [www.mhalink.org](http://www.mhalink.org)

Note: See Appendix III on page 93, Appendix IV on page 95 and Appendix V on page 97.

**Figure 3.2B**

- In addition to the many hospitals that closed, many others converted to long term care, outpatient facilities or offer only emergency services.

## Number of Nursing Homes and Number of Operating Beds in Massachusetts (1990-1999)

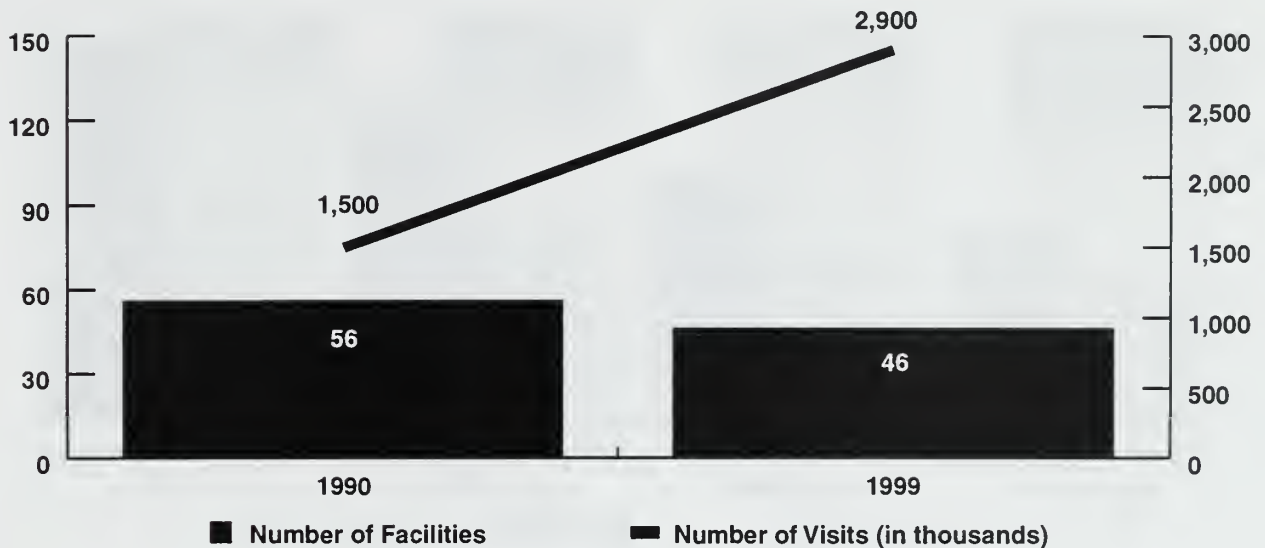


Source: Massachusetts Department of Public Health, Division of Health Care Quality

**Figure 3.3**

- Unlike the trend in hospital beds (see Figure 3.1 on page 35), the number of nursing home beds rose 16% over the decade, while the number of facilities increased slightly over 4% suggesting that larger than average nursing homes survived or were newly opened and smaller nursing homes closed.<sup>1</sup>

## Number of Community Health Centers and Total Visits in Massachusetts (1990 and 1999)



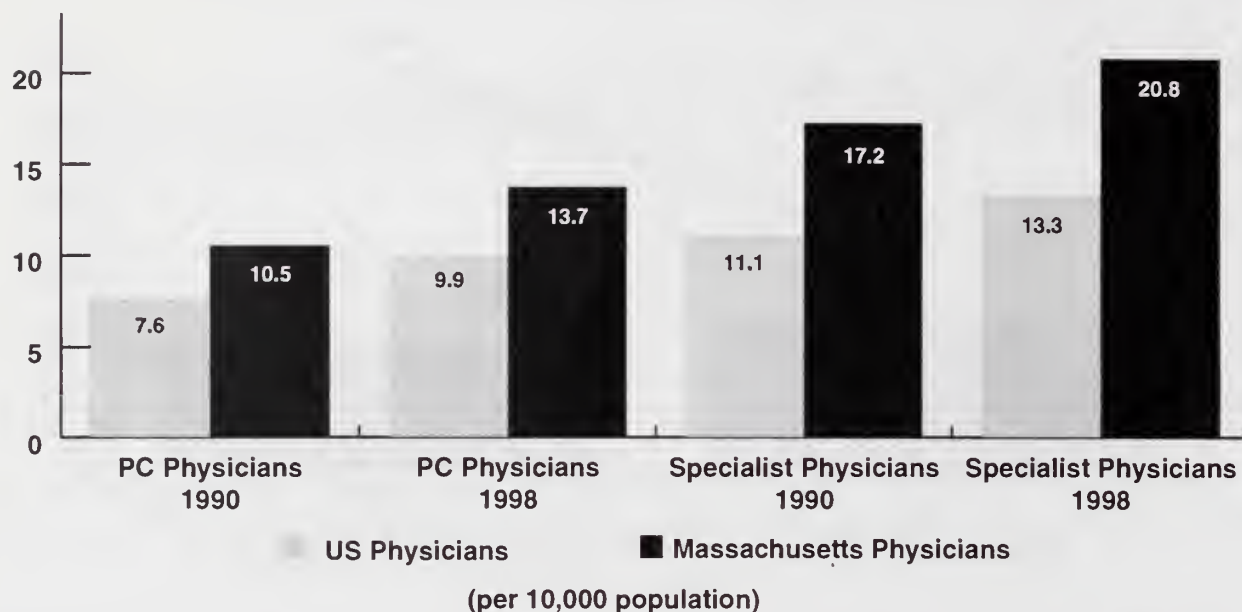
Sources: *MA CHCs in Crisis: Facts, Trends, and Strategic Solutions for Investing in the Safety Net, 2000* and *Transitional Issues Report*, January 1991, Massachusetts League of Community Health Centers

**Figure 3.4**

- Like the trend experienced by hospitals (see Figure 3.1 on page 35), the number of CHCs declined from 56 to 46 during the 1990s, a decrease of 18%.
- Total CHC patient visits increased by 93% from 1.5 to 2.9 million visits, paralleling the steep incline in hospital outpatient visits experienced during this time period (see Figure 3.13 on page 48).



## Primary Care Physicians and Specialist Physicians per 10,000 Population in the US and Massachusetts (1990 and 1998)

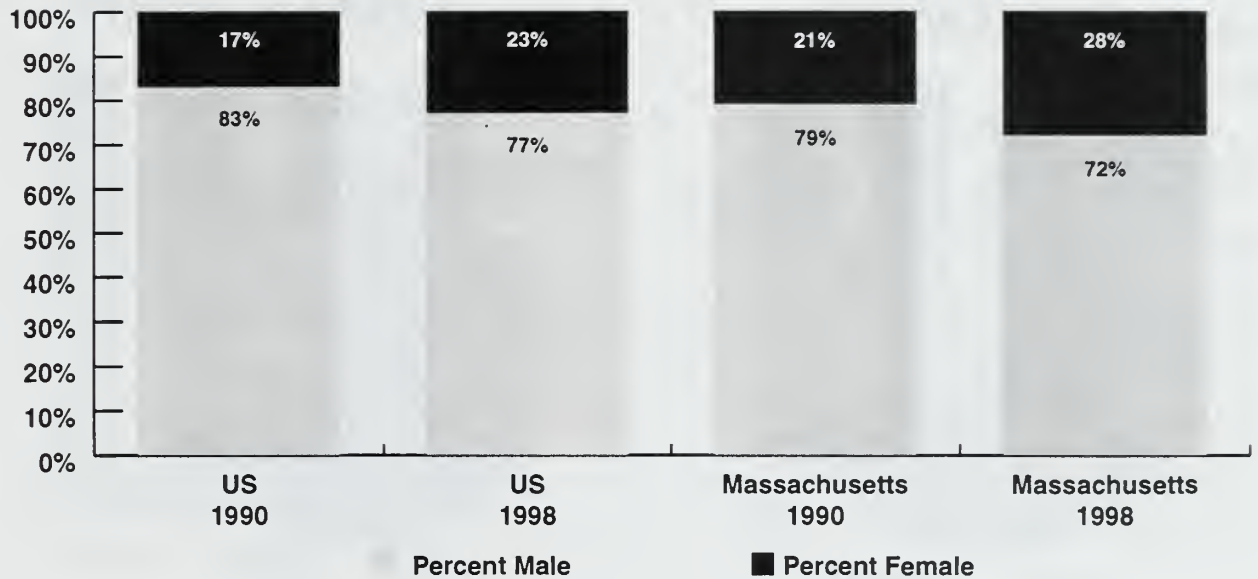


Sources: *Physician Characteristics and Distribution in the US* (1992 edition and 2000-2001 edition), American Medical Association; "State Population Estimates: Annual Time Series, July 1, 1990 to July 1, 1999," US Bureau of Census, [www.census.gov/population/estimates/state/st-99-3.txt](http://www.census.gov/population/estimates/state/st-99-3.txt)  
 Note: Primary care physicians include pediatricians, internists, family practitioners and general practitioners.

**Figure 3.5**

- In both 1990 and 1998, Massachusetts had 38% more primary care physicians per 10,000 population than did the nation overall. However, Massachusetts had even more specialists per 10,000 population than they had primary care physicians in both years (55% and 56% respectively).
- Massachusetts has a particularly large number of specialists. That has not decreased even as managed care has tried to shift much care to primary clinicians and while medical schools and teaching hospitals have tried to train fewer specialists and more generalists.

### Physician Gender Composition in the US and Massachusetts (1990 and 1998)

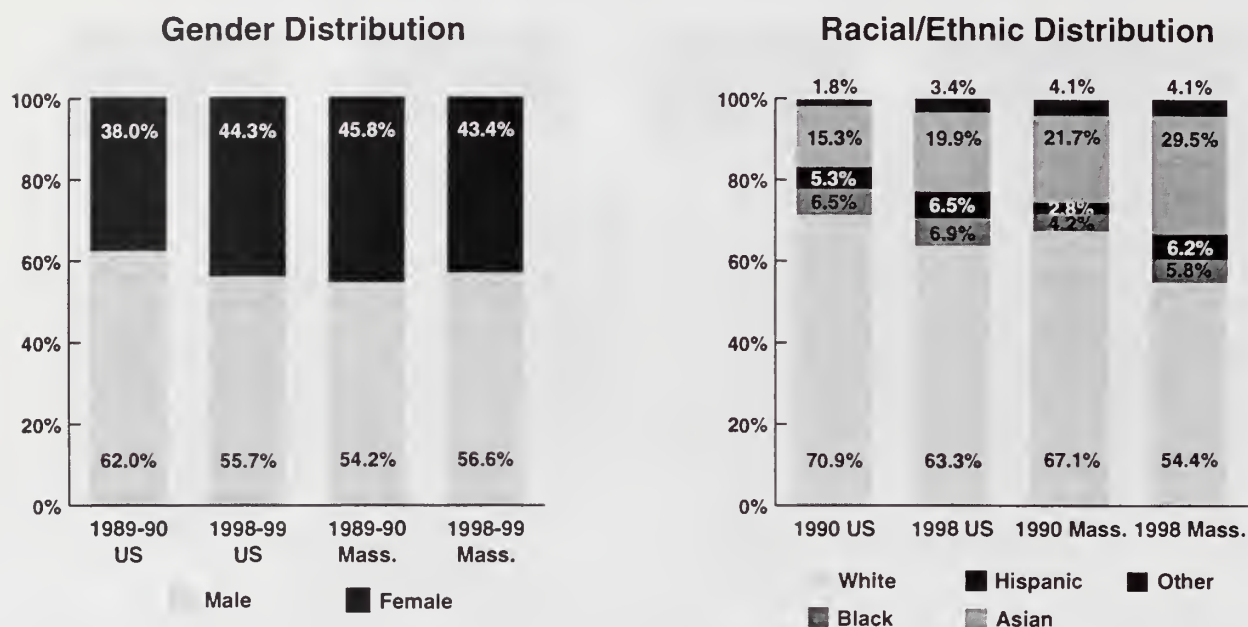


Source: *Physician Characteristics and Distribution in the US* (1992 and 2000-01 editions), American Medical Association

**Figure 3.6**

- In both 1990 and 1998, Massachusetts had a greater proportion of female physicians than the US overall.
- The number of female physicians increased substantially in both the US and Massachusetts over the past nine years.

## Distribution of 1st Year Medical Students by Gender and Race/Ethnicity in the US and Massachusetts (1989-90 and 1998-99)



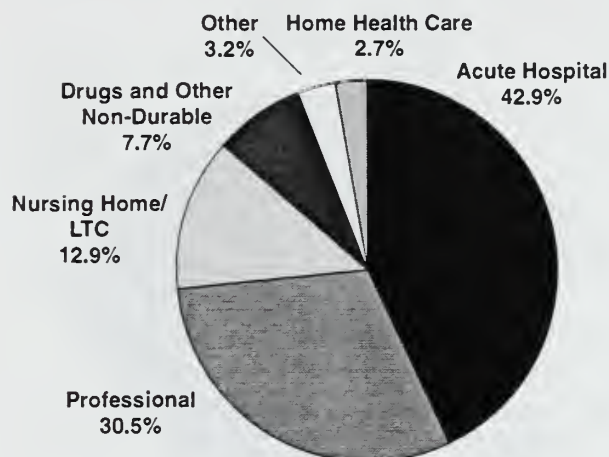
Source: *Medical School Admission Requirement*, US and Canada, 1991-92 and 2000-01 (editions 41 and 50), Association of American Medical College, Washington, D.C.

**Figure 3.7**

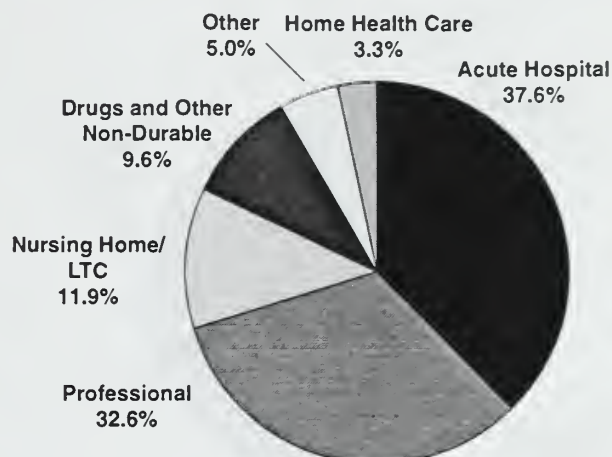
- Nationally, over ten years, there was a 6% increase in the proportion of women entering medical school, although in Massachusetts the proportion of females entering our four medical schools decreased about 2%.
- In both the US and Massachusetts, all minority categories increased their proportion among first year medical students from 1990 while whites decreased in proportion during the decade. The four Massachusetts medical schools had significantly fewer whites and blacks entering in 1998 than the US overall and significantly more Asians than the US overall.

## Distribution of Health Care Expenditures in Massachusetts (1990 and 1998)

1990 Expenditures = \$19.03 Billion



1998 Expenditures = \$30.04 Billion



Source: "Massachusetts Health Expenditures, 1980-1998," July 17, 2000, Health Care Financing Administration, Office of the Actuary, National Health Statistics Group

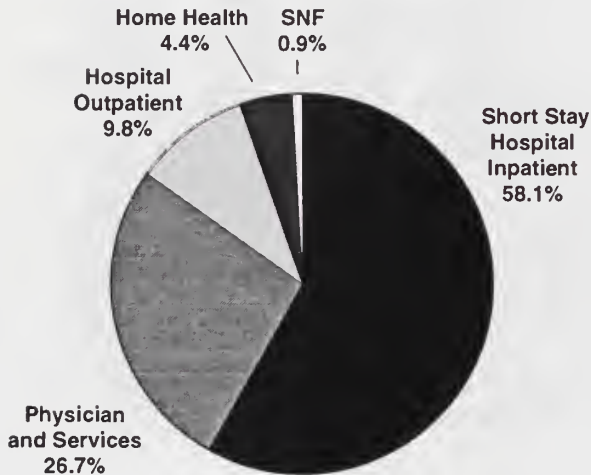
Note: These numbers have not been adjusted for inflation.

**Figure 3.8**

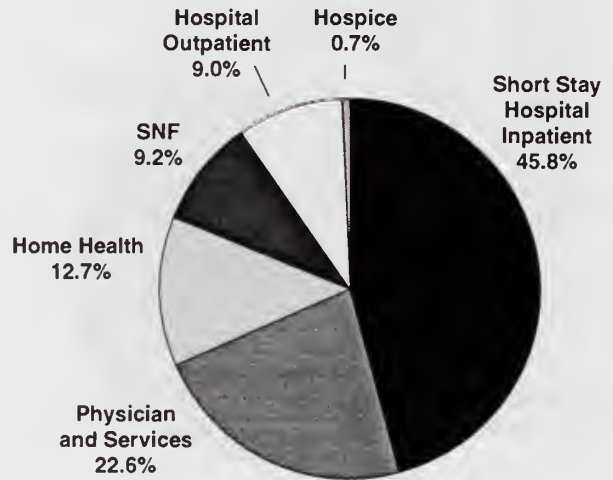
- In Massachusetts, health care expenditures increased from \$19 billion to \$30 billion over the decade. The proportion of these dollars spent on institutions—nursing homes and hospitals—declined over the decade, while expenditures in all other categories increased.

## Distribution of Medicare Expenditures in Massachusetts (1990 and 1997)

1990 Expenditures = \$2.75 Billion



1997 Expenditures = \$4.76 Billion



Source: *Health Care Financing Review*, Medicare and Medicaid Supplement (1992 and 1999), Health Care Financing Administration

Note: The Medicare expenditure numbers in these charts do not represent complete Medicare expenditures. For example, they exclude amounts paid for managed care services and are limited to only those types of services indicated in the charts.

**Figure 3.9**

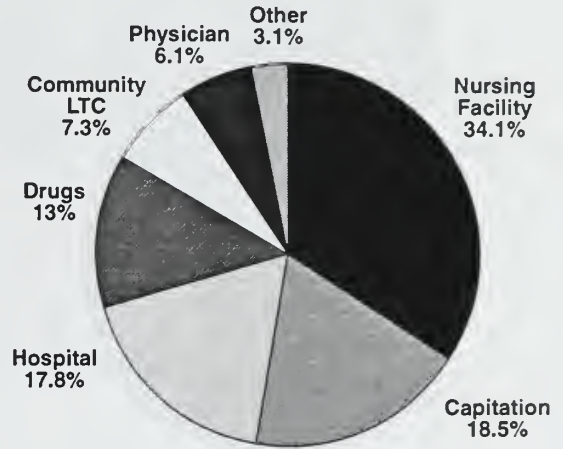
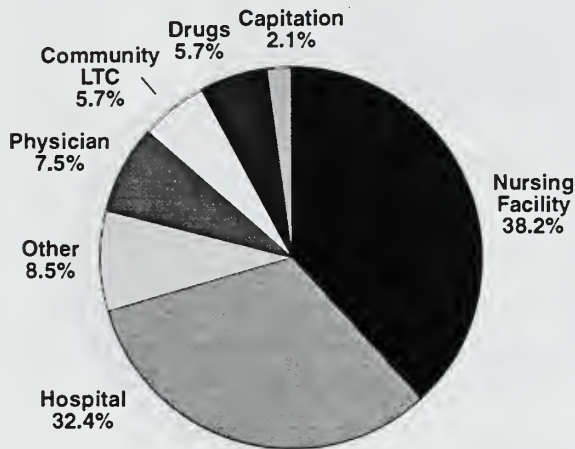
- From 1990 to 1997, total Medicare payments to Massachusetts providers increased 74%. During this time the proportion of Medicare payments for inpatient hospital care and physicians and other clinicians decreased while skilled nursing facility (SNF) and home health payments increased.<sup>2</sup>



## Distribution of Medicaid Expenditures in Massachusetts (1990 and 1998)

1990 Expenditures = \$2,321 Million

1998 Expenditures = \$3,707 Million



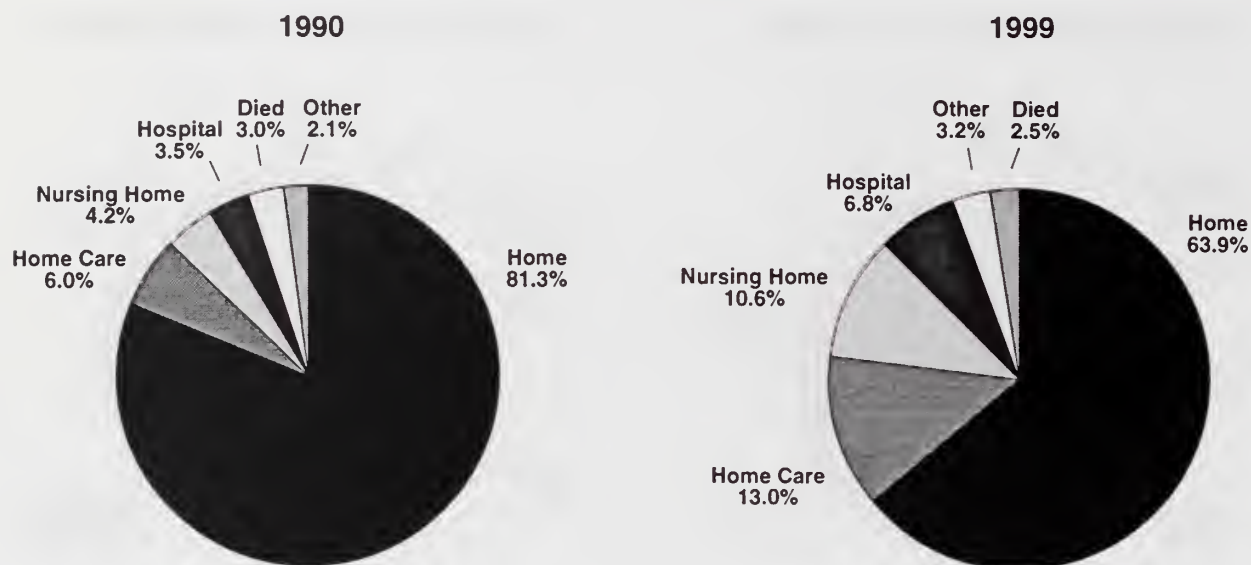
Source: Massachusetts Division of Medical Assistance, Budget Office

Note: These numbers have not been adjusted for inflation.

**Figure 3.10**

- From 1990 to 1998, total Massachusetts Medicaid expenditures rose 60%. The percent for capitation payments increased almost nine fold, reflecting Massachusetts Medicaid's increased reliance on managed care.
- During this period Medicaid spent relatively less on nursing facility payments and more on community long term care. Since the increased capitation payment includes expenditures for hospital and physician care, these two categories are not directly comparable between 1990 and 1998.

## Distribution of Patient Disposition at Discharge from an Acute Hospital in Massachusetts (1990 and 1999)

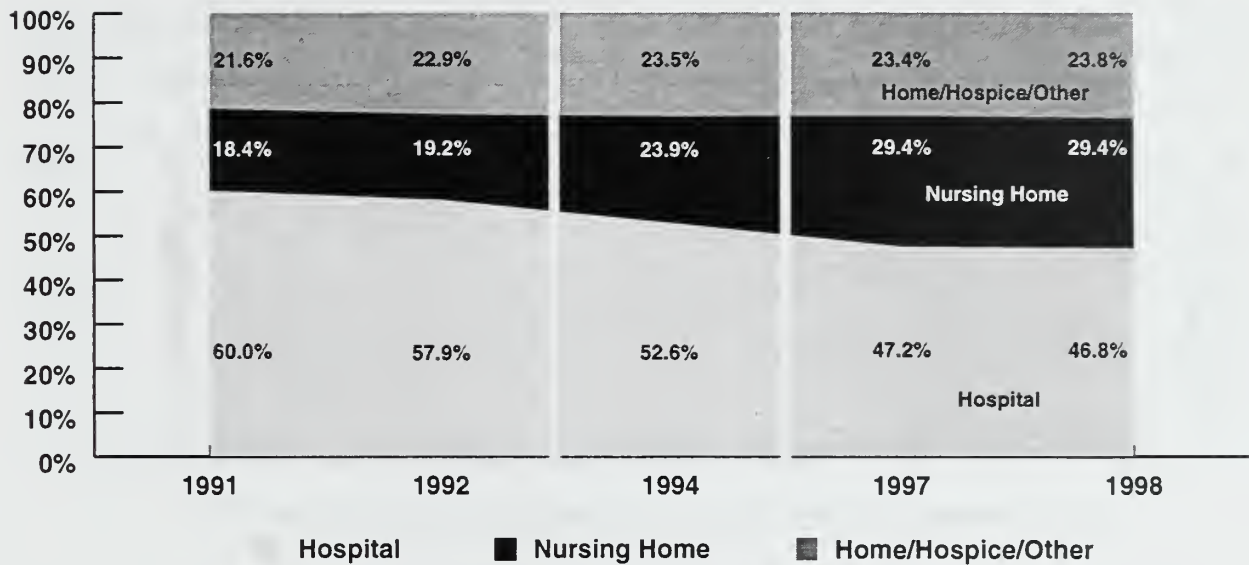


Source: Hospital discharge data, Massachusetts Division of Health Care Finance and Policy

**Figure 3.11**

- Compared to 1990, by 1999, Massachusetts residents were less likely to be discharged home with no support services after an acute hospital stay. The proportion of inpatients who were sent to nursing homes, sent home with health care services, or to another acute or specialty hospital all increased during the decade.
- This trend probably reflected the shortening of the acute hospital stay (see Figure 3.14 on page 49) and the sicker patient hospitalized by the end of the decade (see Figure 3.15 on page 50).

### Site of Death of Massachusetts Residents (1991, 1992, 1994, 1997 and 1998)

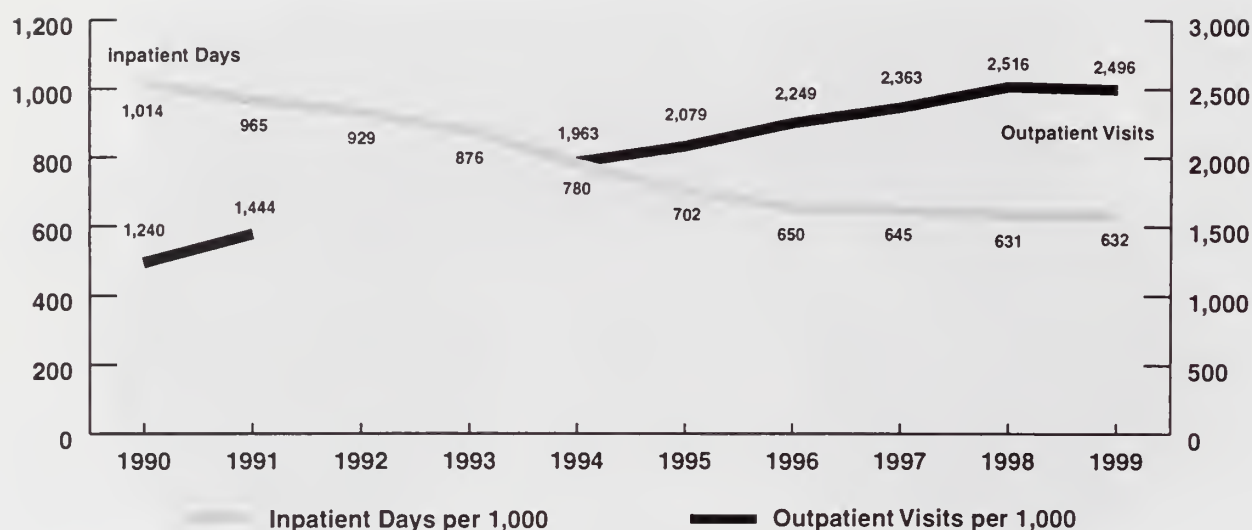


Source: Massachusetts Department of Public Health, Office of Health Statistics, Research and Evaluation

**Figure 3.12**

- From 1991 to 1998, the likelihood that a nursing home would be the place of death for a Massachusetts resident increased 60%. In contrast, the proportion of Massachusetts residents for whom the hospital was the place of death fell 22%.

## Acute Hospital Inpatient Days and Outpatient Visits per 1,000 Population in Massachusetts (1990-1999)



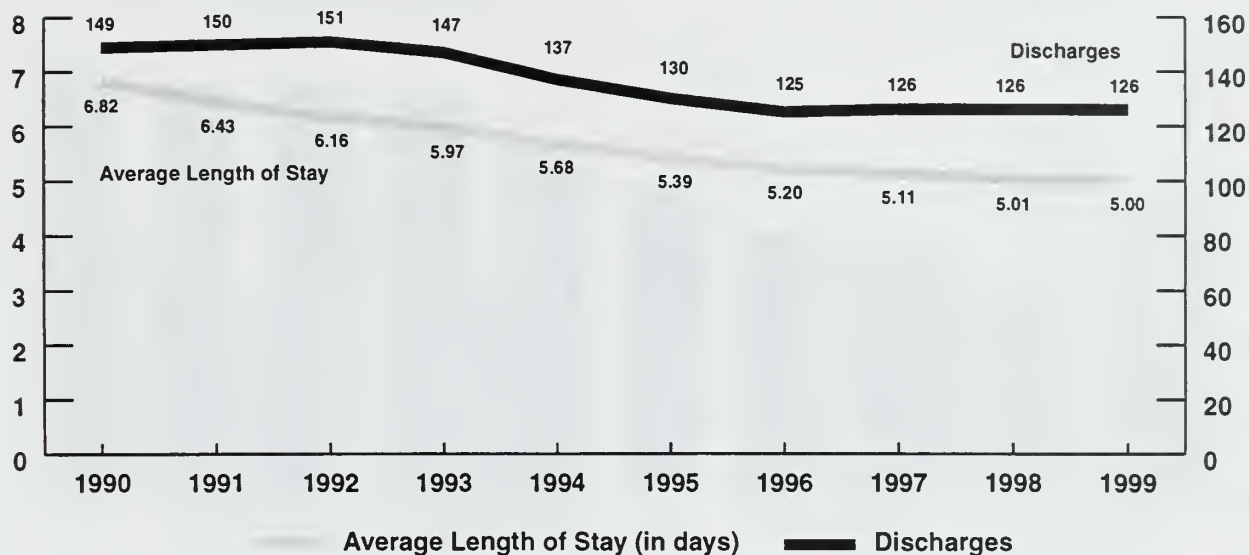
Sources: "Hospital Statement for Reimbursement, DHCFP-403" and hospital discharge data, Massachusetts Division of Health Care Finance and Policy

Note: Complete data were unavailable for 1992 and 1993.

**Figure 3.13**

- Outpatient visits per 1,000 population more than doubled in Massachusetts between 1990 and 1999. Conversely, inpatient days decreased 38% over this time frame.
- Increased pressure for cost containment in the health care system and improved medical technology and pharmacology facilitated many patients to be managed on an outpatient basis, resulting in dramatic changes in inpatient and outpatient utilization.
- The emergence in the early 1990s of a new type of stay—Observation (technically classified as an outpatient stay)—is also partially responsible for the downward trend in inpatient hospital days.

### Acute Hospital Discharges per 1,000 Population and Average Length of Stay in Massachusetts (1990-1999)



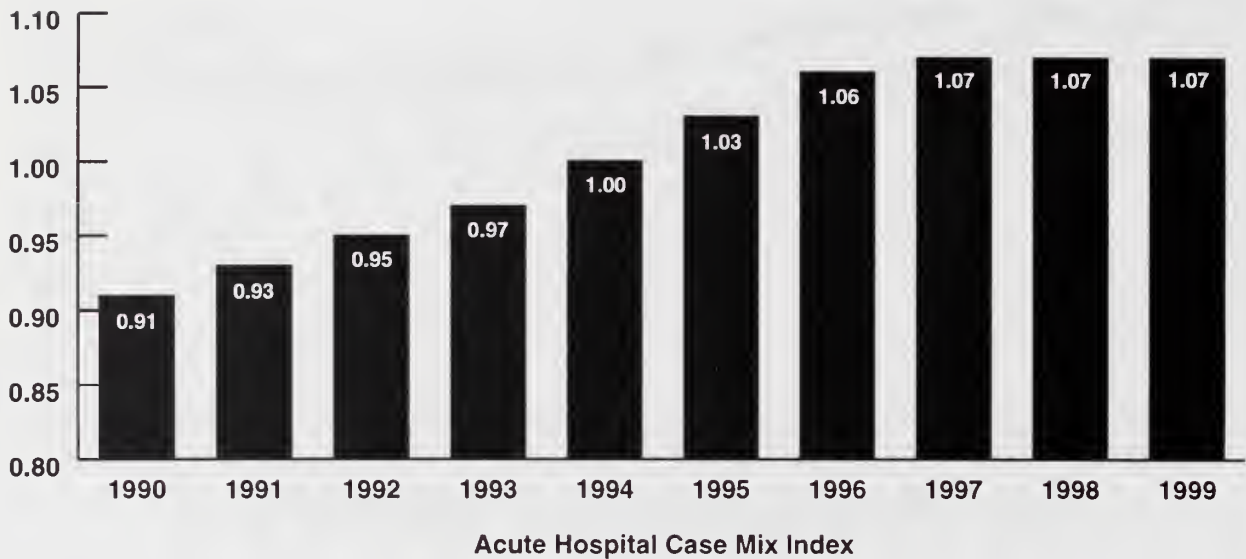
Source: Hospital discharge data, Massachusetts Division of Health Care Finance and Policy

**Figure 3.14**

- During the last decade, the total number of acute hospital discharges per 1,000 population dropped 15% in Massachusetts. The average length of stay (ALOS) fell 27% during this time period. These trends underscore the changing role hospitals play in health care delivery, which is characterized by fewer admissions and shorter stays when individuals are admitted.



## Acute Hospital Case Mix Index (CMI) in Massachusetts (1990-1999)

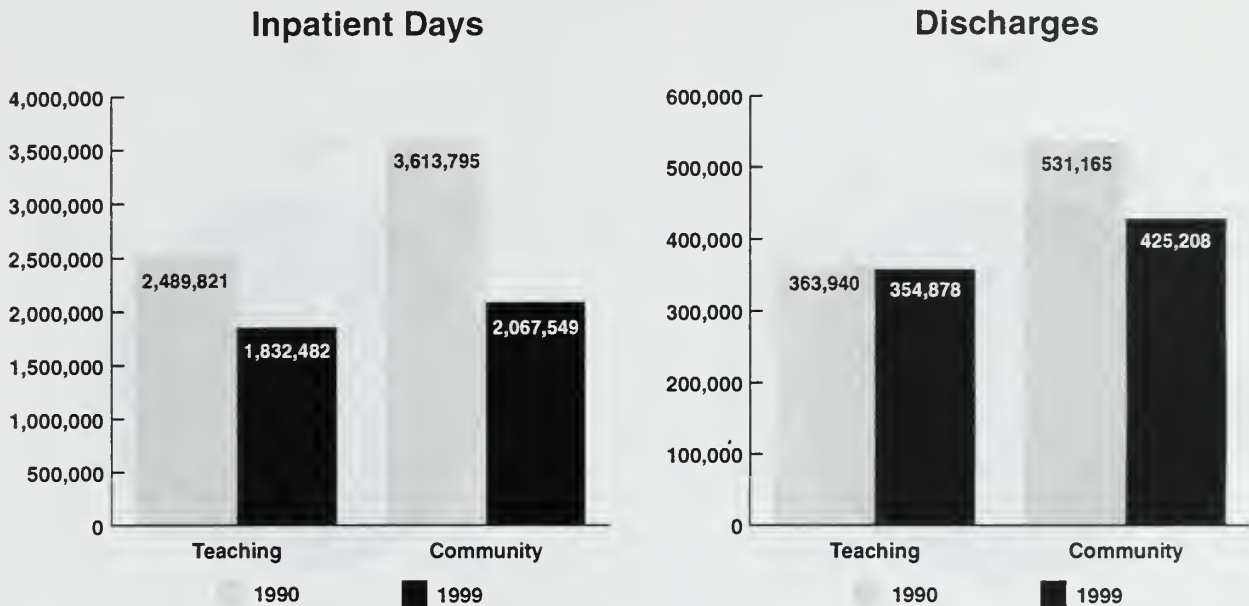


Source: Hospital discharge data, Massachusetts Division of Health Care Finance and Policy

**Figure 3.15**

- The case mix index (CMI) is a measure of relative resource use in hospital care. The CMI is calculated by assigning a cost weight to all hospital cases. A case costing the average amount of money yields a cost weight of 1.0. As cases increase in cost and complexity, the cost weight assigned to them also increases. To derive the CMI for a given year, one sums up all the cost weighted cases and then divides them by the total number of cases for that year. This indicator may be used as a proxy for the complexity of services used to treat a particular group of patients.
- From 1990 to 1999, the Massachusetts acute hospital CMI increased 18%. Thus, while patients are being admitted to the hospital less frequently and staying shorter periods of time (see Figure 3.14 on page 49), once admitted, the cost and complexity of hospital patients has increased. Some of this increase is explained by the likelihood that less complex cases are being treated in an ambulatory setting, leaving more complex cases to be hospitalized.

## Inpatient Days and Discharges for Teaching versus Community Hospitals in Massachusetts (1990 and 1999)



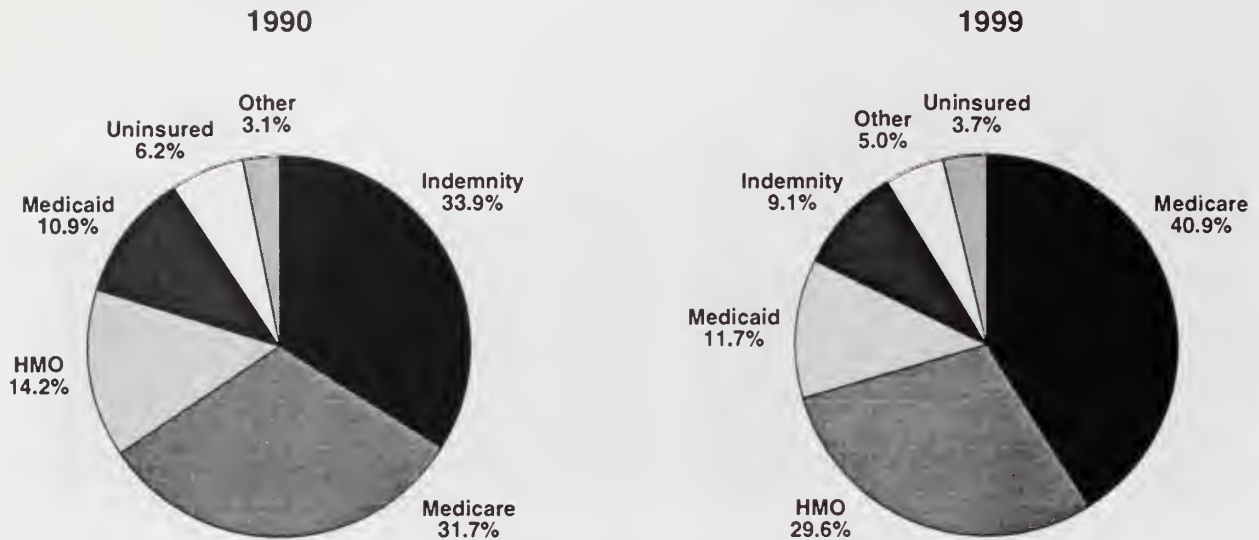
Source: Hospital discharge data, Massachusetts Division of Health Care Finance and Policy

**Figure 3.16**

- From 1990 to 1999 the number of inpatient days declined at a greater rate for community hospitals (43%) than for teaching hospitals (26%). Additionally, inpatient discharges declined 20% for community hospitals but less than 3% for teaching hospitals.
- Managed care has been largely unsuccessful in moving primary and secondary care out of teaching hospitals to less expensive community hospitals. This has had an impact on the overall cost of hospital care in Massachusetts.

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## Acute Hospital Discharges by Payer in Massachusetts (1990 and 1999)

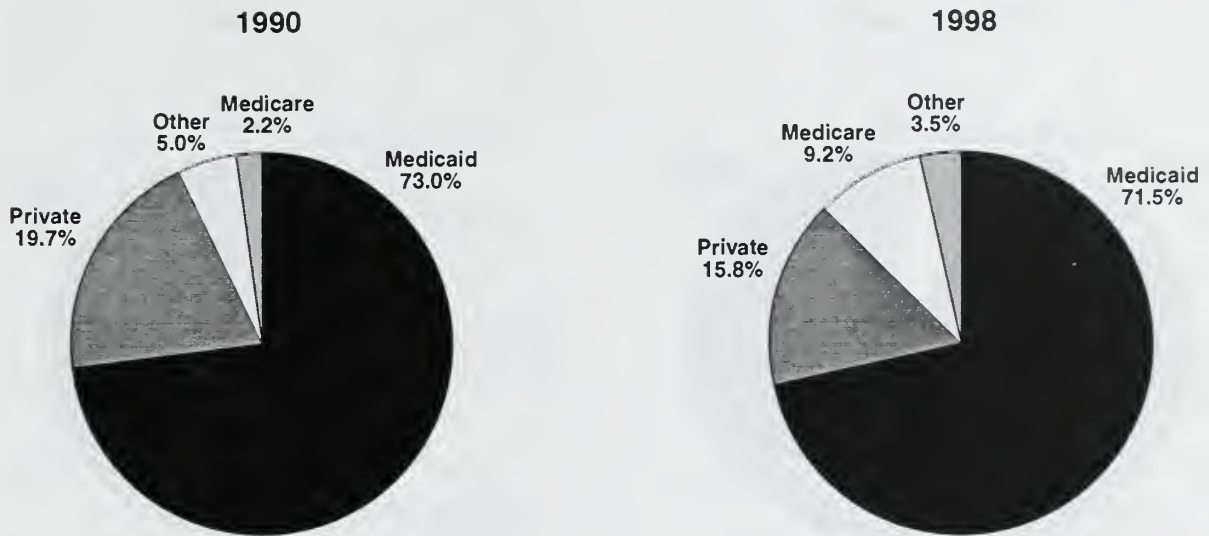


Source: Hospital discharge data, Massachusetts Division of Health Care Finance and Policy

**Figure 3.17**

- Many payer categories had significant changes in their share of total acute hospital discharges. HMO discharges more than doubled, discharges covered by indemnity payers dropped dramatically from 34% to 9%, and the proportion of discharges for individuals without insurance fell from 6.2% to 3.7% of all discharges.
- By comparing these pie charts to Figure 3.19 on page 54, one can see that in 1998 Medicare revenues were proportionately higher than its discharges while the reverse is true for Medicaid, meaning that Medicare patients are somewhat more costly and Medicaid somewhat less costly than average.

### Nursing Home Days by Payer in Massachusetts (1990 and 1998)

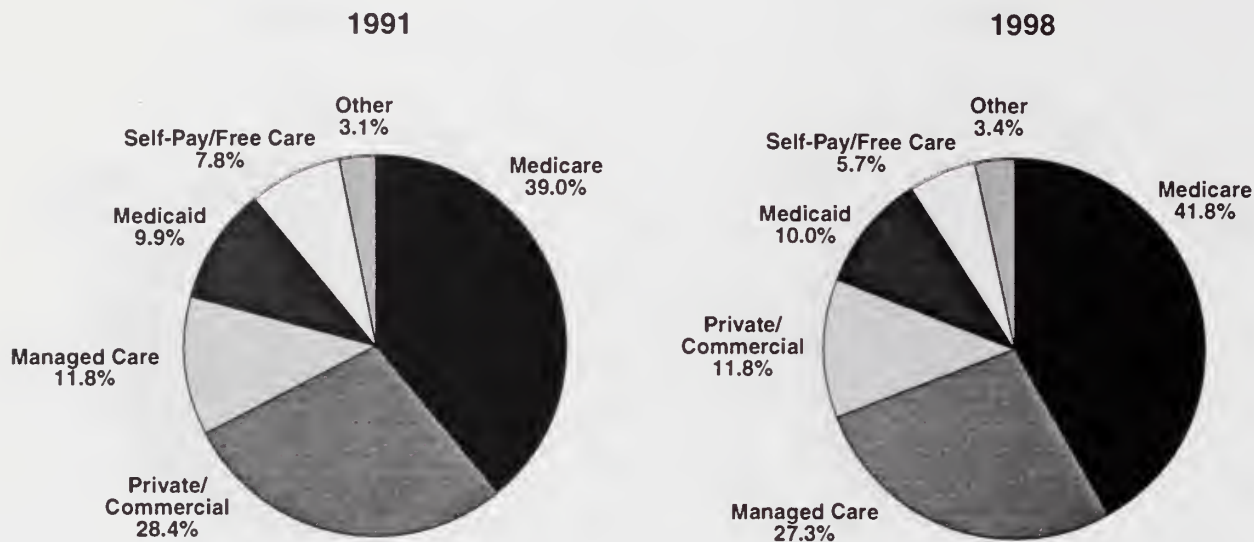


Source: HCF-1 nursing facility cost reports, Massachusetts Division of Health Care Finance and Policy

**Figure 3.18**

- In 1998, Medicaid was responsible for fewer nursing home days proportionately than it was in 1990 while Medicare represented significantly more. Medicare covers only short term recuperative nursing home stays, but this increase reflects the huge increase in nursing homes as the discharge destination of acute hospital patients (see Figure 3.11 on page 46).
- See Figure 3.20 on page 55 for balance between share of days and share of revenue.

## Distribution of Acute Hospital Revenues by Payment Source in Massachusetts (1991 and 1998)



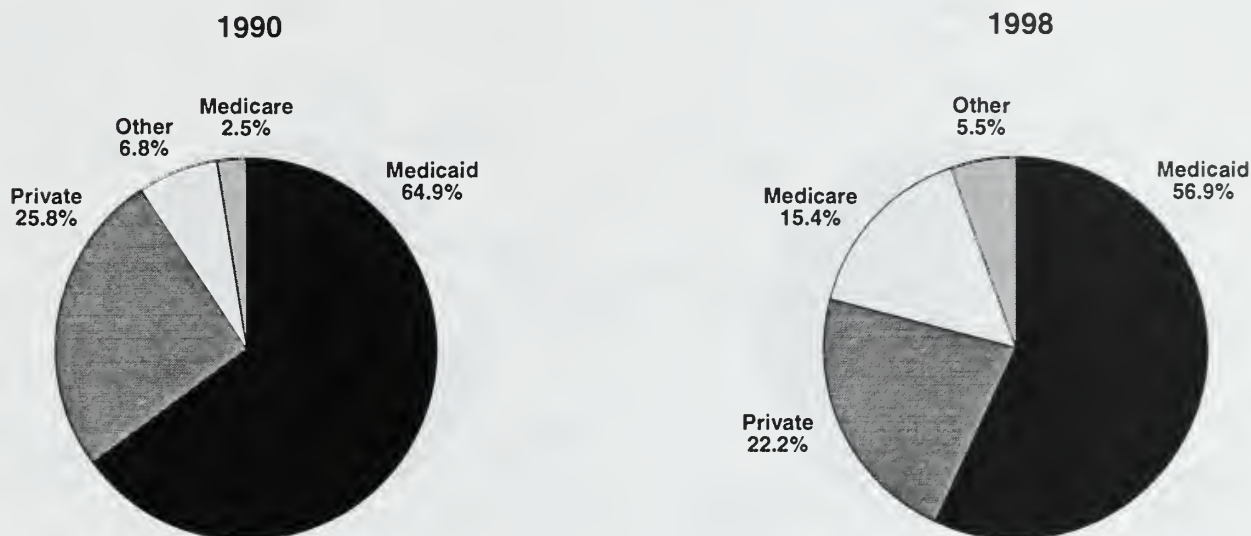
Source: "Hospital Statement for Reimbursement, DHCFF 403," Massachusetts Division of Health Care Finance and Policy

**Figure 3.19**

- Medicare represents even more of hospitals' revenues in 1998 than it did in 1991 but those increases are dwarfed by managed care's increased importance.
- See Figure 3.17 on page 52 for balance between share of days and share of revenues.



## Distribution of Nursing Home Revenues by Payment Source in Massachusetts (1990 and 1998)



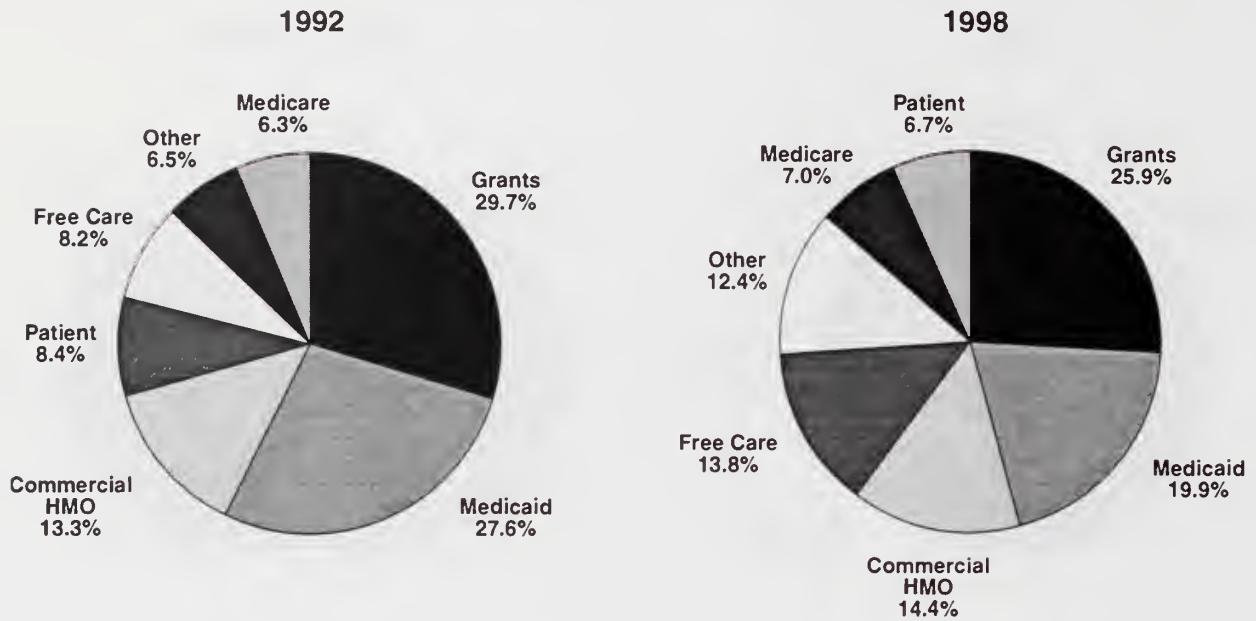
Source: HCF-1 nursing facility cost reports, Massachusetts Division of Health Care Finance and Policy

**Figure 3.20**

- Between 1990 and 1998, combined revenues from Medicaid and Medicare increased from a total of 67.4% to 72.3% of nursing home revenue, and included a larger share of Medicare revenues and a declining proportion of Medicaid revenues. Medicare covers only short-term recuperative nursing home stays. Revenues from other sources remained relatively stable.
- Medicaid patients comprise by far the largest portion of nursing home patients, but far less of their revenues. For private and Medicare patients, the reverse is true—nursing homes derive more of their revenues than their proportion of patient days from these two payers (see Figure 3.18 on page 53).

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## Distribution of Community Health Center Revenues by Payment Source in Massachusetts (1992 and 1998)

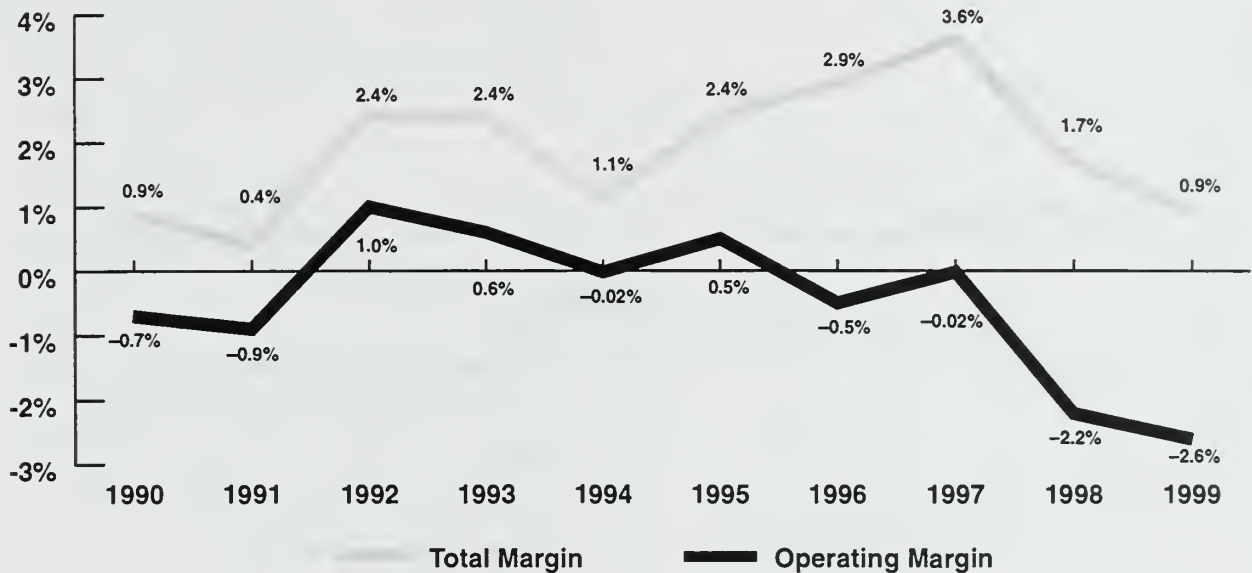


Sources: *Safe Harbors for Patient Care in Health Care Reform*, March 1994 and *MA CHCs in Crisis: Facts, Trends and Strategic Solutions for Investing in the Safety Net*, 2000, Massachusetts League of Community Health Centers

**Figure 3.21**

- Between 1992 and 1998, community health center (CHC) revenues became increasingly diversified. Combined revenues from grants and Medicaid decreased from nearly 60% to about 45% over the decade. Free care as a proportion of CHC revenues increased over the decade. Chapter 495 of the Acts of 1991 enabled CHCs to be reimbursed for free care through the Massachusetts Uncompensated Care Pool.

## Total and Operating Margins for Acute Hospitals in Massachusetts (1990-1999)

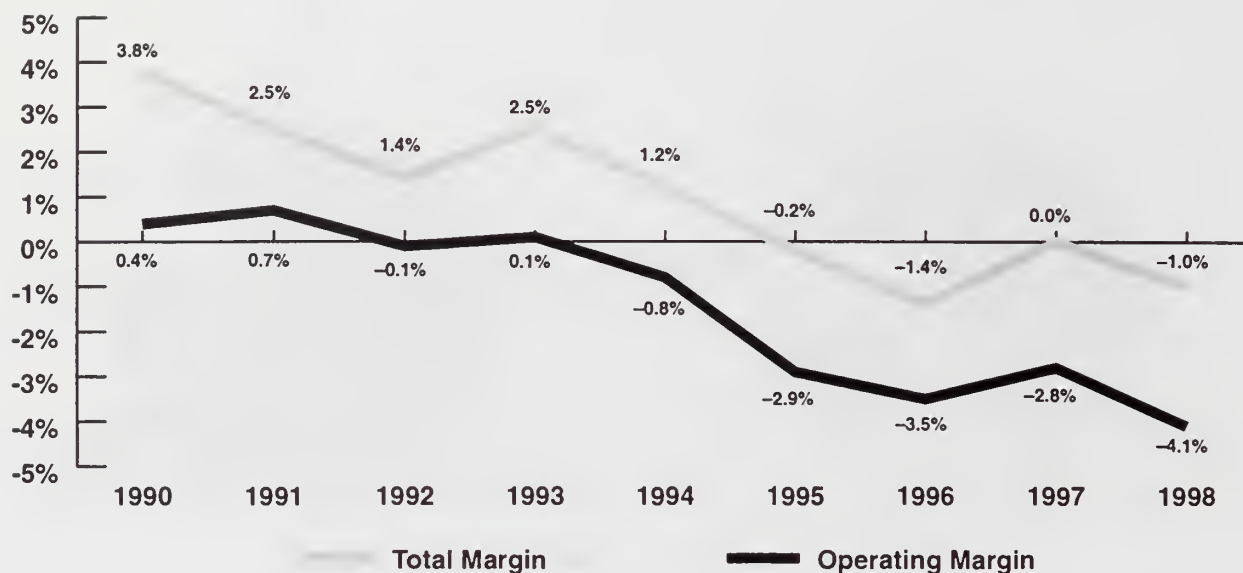


Source: "Hospital Statement for Reimbursement, DHCFP 403" Massachusetts Division of Health Care Finance and Policy

**Figure 3.22**

- The total margin for Massachusetts acute care hospitals fluctuated a great deal during the 1990s, but by the end of the decade declined to 0.9% in 1999, identical to the 1990 figure and dangerously thin.
- During this same time period, Massachusetts hospitals' operating margin decreased almost four fold from -0.7% to -2.6%.
- Thus, acute hospital operating expenses were not covered by operating revenue by the end of the decade, signaling a dangerous imbalance in hospitals' core business. Revenues from other sources, such as investments, were offsetting these losses, resulting in a small, positive total margin. While not completely responsible for the hospitals' financial troubles, the 1997 passage of the Balanced Budget Act exacerbated those troubles considerably.

## Total and Operating Margins for Nursing Homes in Massachusetts (1990-1998)

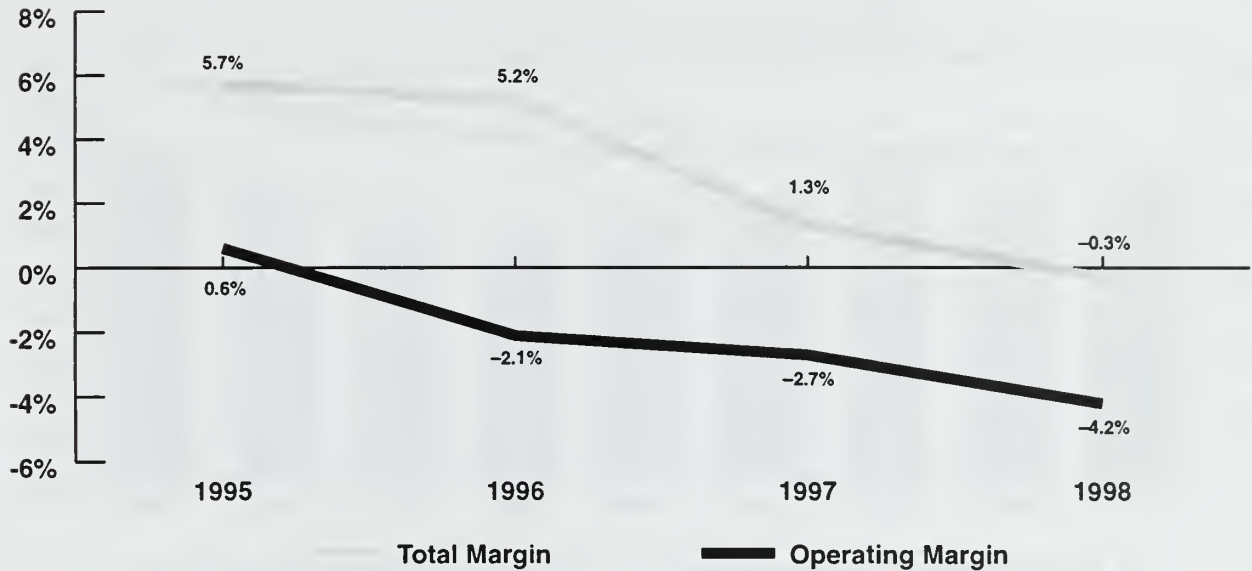


Source: HCF-1 nursing facility cost reports, Massachusetts Division of Health Care Finance and Policy

**Figure 3.23**

- Between 1990 and 1998, the total margin for Massachusetts nursing homes dropped more than four fold from 3.8% to -1.0%. Additionally, nursing homes' operating margin decreased more than four fold from 0.4% to -4.1%. Thus, as in the case of acute hospitals (see Figure 3.22 on page 57), operating expenses for nursing homes were not covered by operating revenue by the end of the decade. Unlike hospitals, revenue from other sources such as investments, did not offset these losses for Massachusetts nursing homes and some closed.
- Nursing homes, like hospitals, were adversely affected by the Balanced Budget Act of 1997, which reduced Medicare payments to nursing facilities across the Commonwealth.

## Total and Operating Margins for Community Health Centers in Massachusetts (1995-1998)



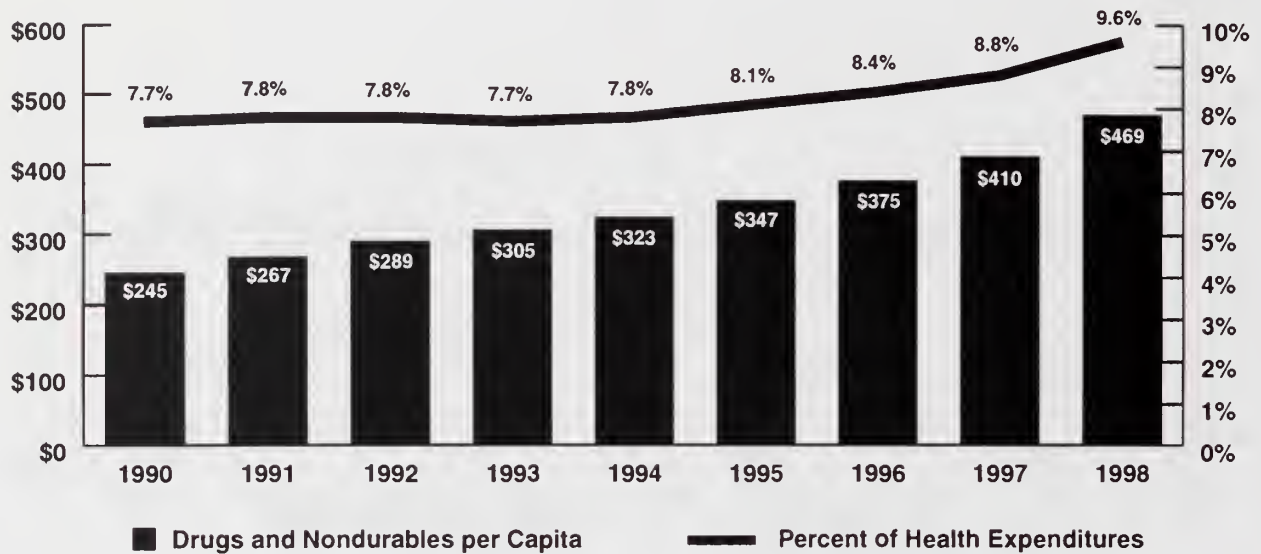
Source: *MA CHCs in Crisis: Facts, Trends, and Strategic Solutions for Investing in the Safety Net*, 2000, Massachusetts League of Community Health Centers

**Figure 3.24**

- The total margin for Massachusetts community health centers (CHCs) from 1995 to 1998 declined almost six fold from 5.7% to -0.3%. Similarly, their operating margin fell almost five fold from 0.6% to -4.2%.
- Following the same downward trend of acute care hospitals (see Figure 3.22 on page 57) and nursing homes (see Figure 3.23 on page 58), total and operating margins for Massachusetts CHCs dropped into negative figures over the course of the decade.



## Drug and Other Nondurable Medical Expenditures per Capita and Percent of Health Care Expenditures in Massachusetts (1990-1998)

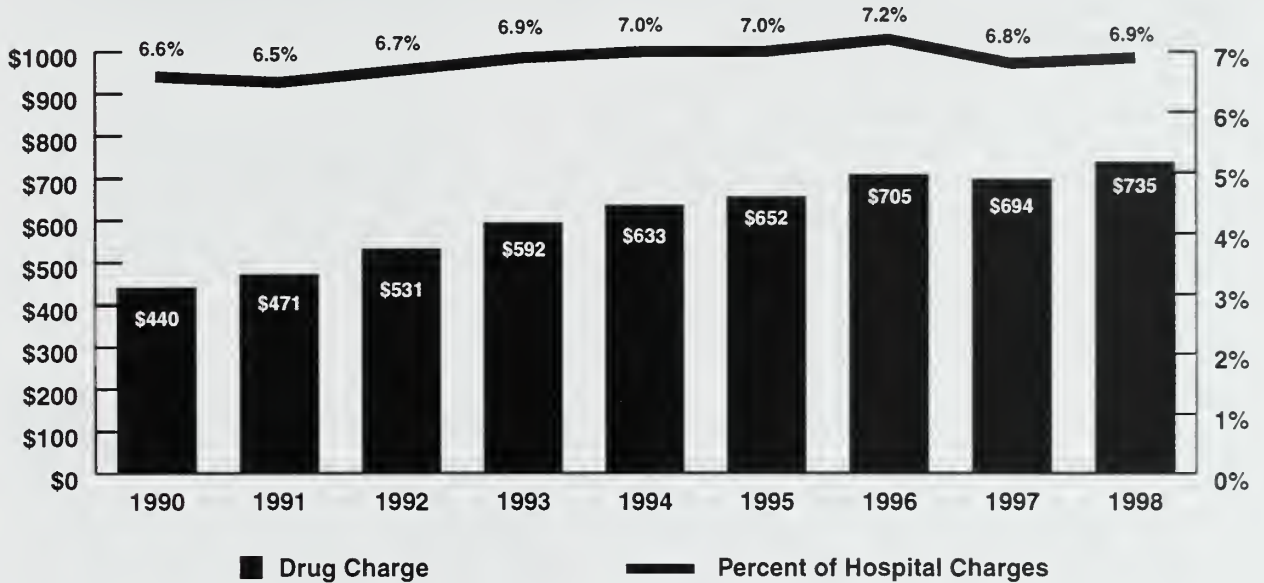


Source: "Massachusetts Health Expenditures, 1980-1998," July 17, 2000, Health Care Financing Administration, Office of the Actuary, National Health Statistics Group  
 Note: These numbers have not been adjusted for inflation.

**Figure 3.25**

- From 1990 to 1998, per capita drug expenditures in Massachusetts increased 91%. As a share of total health care expenditures, the percentage increased from 7.7% to 9.6%.
- The issue of increasing pharmaceutical costs has received attention at the state and national levels. State policies developed to address these concerns over the decade include the creation of the Pharmacy Program (for seniors) and the continued coverage of pharmaceuticals under the Massachusetts Medicaid program. These increases have also led to the introduction of a three-tiered payment policy among many HMOs covering drugs, as well as renewed pressure on Medicare to insure seniors for drugs.

## Average Drug Charge per Acute Hospital Discharge and Percent of Total Hospital Charges in Massachusetts (1990-1998)



Source: Hospital discharge data, Massachusetts Division of Health Care Finance and Policy

Note: These numbers have not been adjusted for inflation.

**Figure 3.26**

- The average prescription drug charge per acute hospital discharge increased 67% during the 1990s. However, the pharmacy share of total charges only rose from 6.6% to 6.9% during this time, reflecting the large increase in all hospital charges throughout this period.
- While the increased use of pharmaceuticals has most likely allowed shorter and fewer hospitalizations (see Figure 3.14 on page 49), the rapid increase in drug costs are a tremendous challenge to the entire health care system.

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### **Endnotes for Chapter 3: Health Care Delivery System**

1. Hospital-based long term care facilities were included in our count of nursing homes and permanent bed levels.
2. Physician and supplier services: the supplier services include services and supplies provided by suppliers, such as medical supply and ambulance companies, independent laboratories and portable X-ray suppliers billing independently, voluntary health and charitable organizations, and pharmacies.

# Chapter 4:

## Health Care Consumption

**W**hile much attention in this publication is paid to the institutions of health care, this chapter is about all of us. Amidst all of the changes illustrated in the previous chapters, how have we fared? Massachusetts has made improvements in people's lives in many significant ways: people are living longer with AIDS, the teen birth rate is down and the stubborn discrepancy between African-American and white infant mortality is starting to narrow.

Other things are inexorable such as aging and its accompanying increase in chronic disease. Antibiotics that helped ensure that we no longer die quickly from infectious disease, don't insulate us from the accumulated disabilities of chronic disease. And while women, especially in Massachusetts, are challenging the traditional age boundaries of motherhood, even that often comes with the compromised health of multiple fetuses.

Health care is a big business in Massachusetts as it is elsewhere, even though it is generally nonprofit here. In many ways, we have started to apply our consumer skills to obtaining health care—but not in paying for it. We want information—medical, outcomes and satisfaction (but not cost) even if the data show that we haven't changed our behavior much yet because of such information. This is an area we expect to change greatly in the next decade.

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## **AIDS**

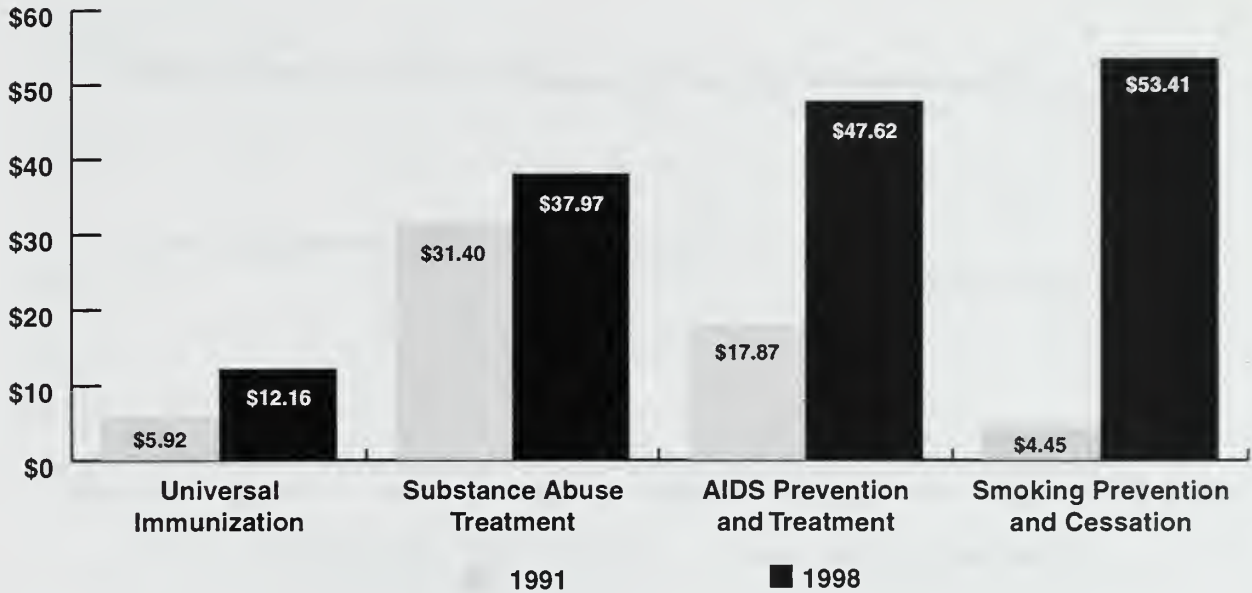
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## **Consumerism**

- Figure 4.15 Indicators Driving Consumerism in the US (1990-1998) p. 79
- Figure 4.16 Number of Adults Using E-Health Web Sites in the US (1994-1999) p. 80



### Public Health Expenditures on Four Major Programs in Massachusetts (1991 and 1998)



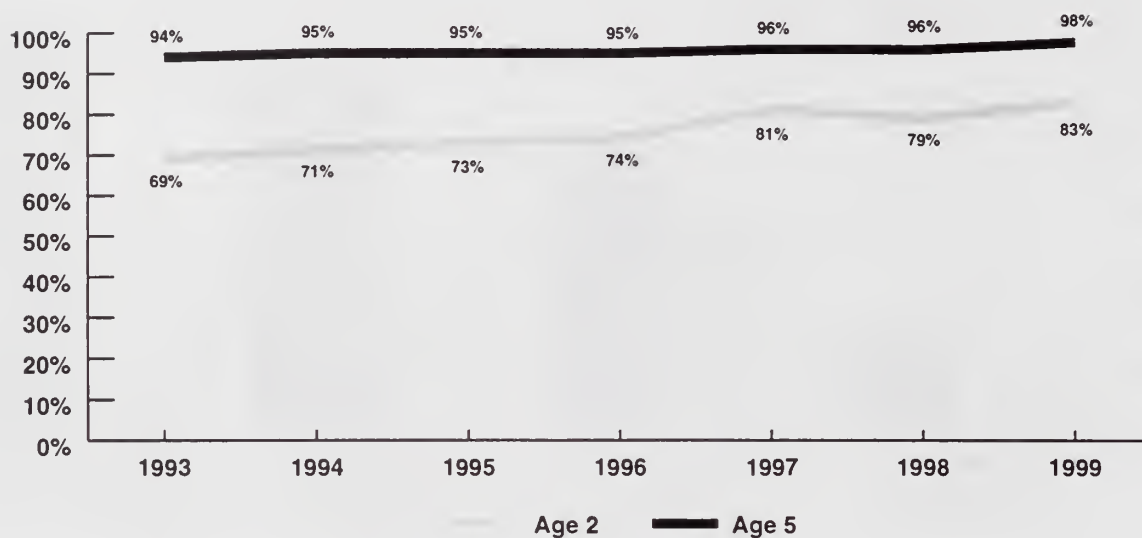
Source: Massachusetts Executive Office of Administration and Finance, Fiscal Affairs Division.

Note: These numbers have not been adjusted for inflation.

**Figure 4.1**

- Between 1991 and 1998, the Commonwealth increased spending for each of four major health programs: immunization, substance abuse, AIDS and smoking. The largest increase, about ten fold, was for smoking prevention programs, fueled in part by a successful 1992 ballot initiative which authorized an increase in the tobacco tax to fund a campaign to discourage young people from smoking.

## Childhood Immunization Rates in Massachusetts (1993-1999)



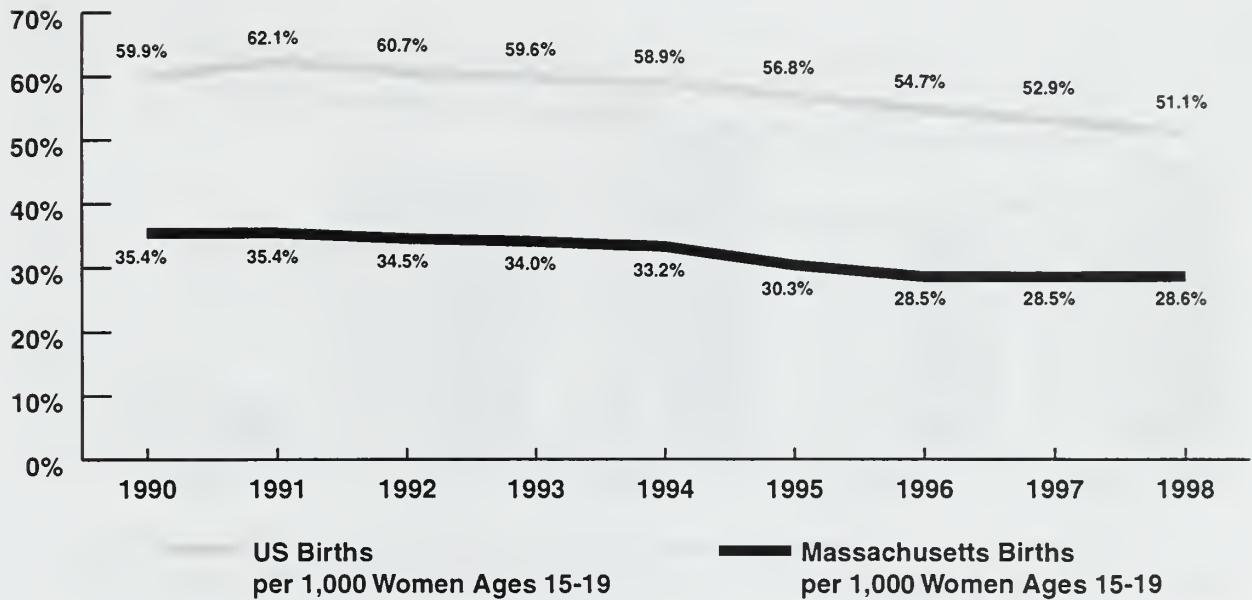
Source: MassCHIP database, Massachusetts Department of Public Health, Communicable Disease Programs-Immunization Program

Note: Complete data were unavailable for 1990-1992.

**Figure 4.2**

- Between 1993 and 1999, childhood immunization rates improved, especially for two year old children. Nearly every five year old Massachusetts resident has been immunized, and the proportion of two year old children with immunizations grew from 69% to 83% over the decade.

## Teen Birth Rate in the US and Massachusetts (1990-1998)

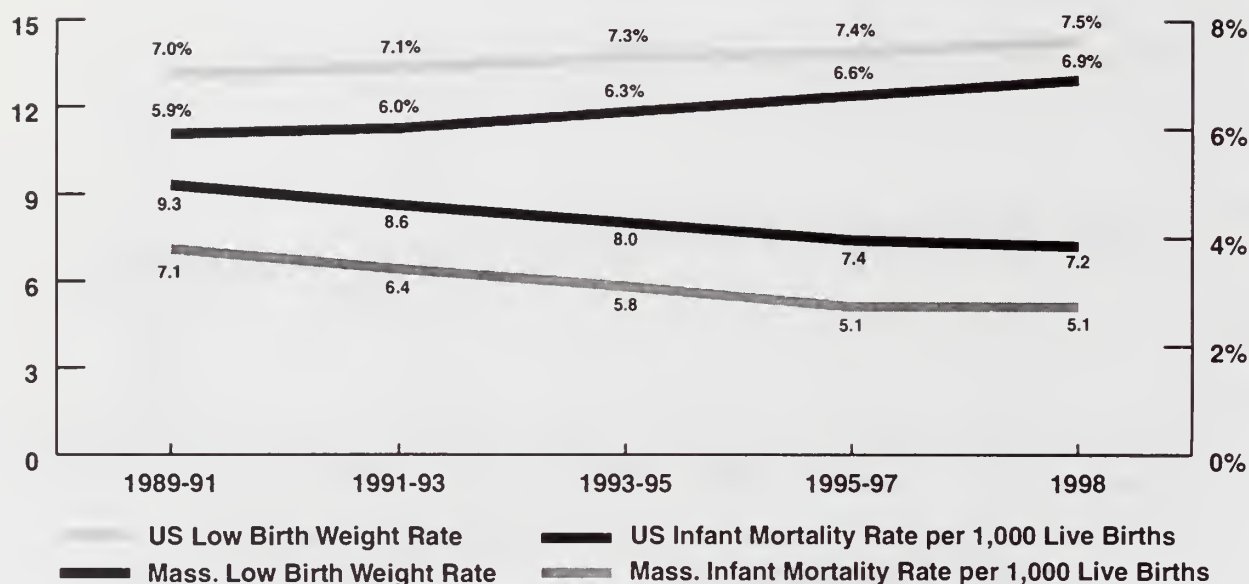


Source: *Adolescent Births: A Statistical Profile Massachusetts, 1998*, Massachusetts Department of Public Health

**Figure 4.3**

- For every 1,000 female residents in Massachusetts ages 15-19, there were nearly 29 live births in 1998, a 19% decrease from the 1990 rate of 35.4 live births. These rates were substantially lower than national rates—the US birth rate dropped from 59.9 births per 1000 to 51.1 births. In Massachusetts less than 3% of all infants were born to women under age 18, and 7.3% were born to women under age 20.

## Infant Mortality Rate and Low Birth Weight Rate in the US and Massachusetts (1989-1998)

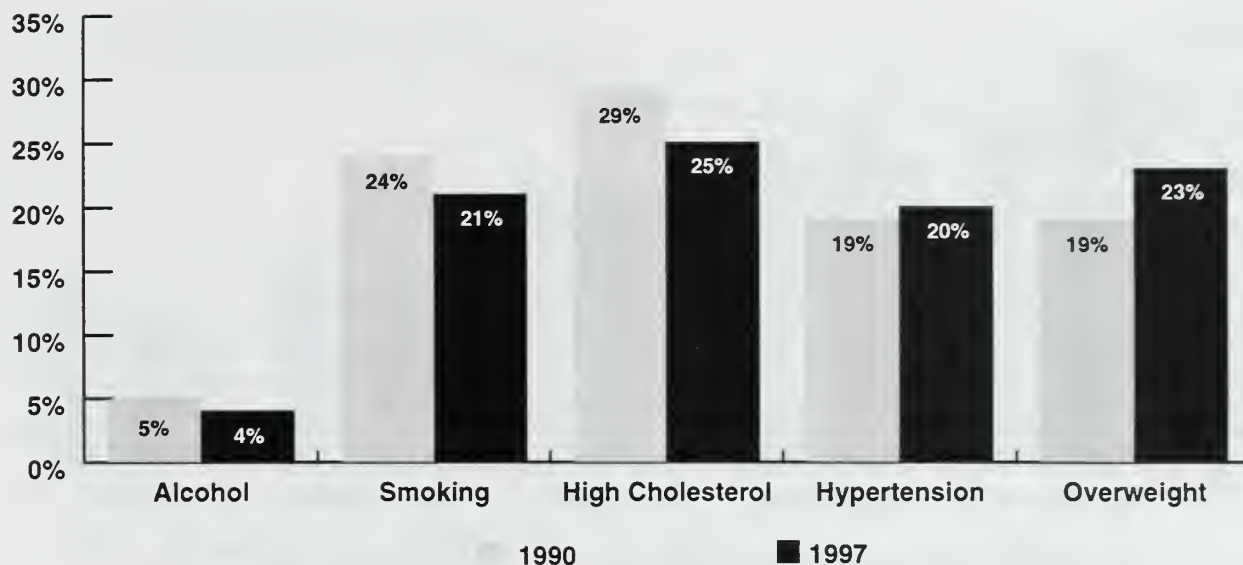


Sources: *Health, United States, 1999*, US Department of Health and Human Services; "Advance Births 1998," Massachusetts Department of Public Health

**Figure 4.4**

- In 1998, 414 infant deaths occurred among Massachusetts residents, representing an infant mortality rate (IMR) of 5.1 deaths per 1,000 live births. This rate was 29% below the preliminary 1998 US rate of 7.2 deaths per 1,000 live births, and lower than the 1990 Massachusetts rate of 7.1 deaths per 1,000 live births.
- While infants born to black non-Hispanic mothers continue to have the highest IMR, 10.6 per 1,000 live births in 1998, this represents a 9% decrease from the 1997 rate of 11.7, but more than double the IMR of 4.6 for white non-Hispanic mothers (not shown). Continuing to narrow the gap between infant mortality rates among various ethnic groups is a major public health goal (see Appendix I on page 83 and page 88).
- In 1998, 6.9% (5,655) of infants born to Massachusetts women were low birth weight (less than 2,500 grams or 5.5 pounds), slightly below the national figure of 7.5%. The low birth weight rate increased over the decade, for both Massachusetts and the nation. This is at least partially the result of babies surviving who previously might have died, but for recent medical advances. Additionally, in Massachusetts the proliferation of multiple births to older mothers has added to the increase in low birth weight babies (see Figure 4.11 on page 75).
- The proportion of low birth weight babies varies by race and ethnicity of mother, as does the infant mortality rate.

## Health Risk Factors in Massachusetts (1990 and 1997)



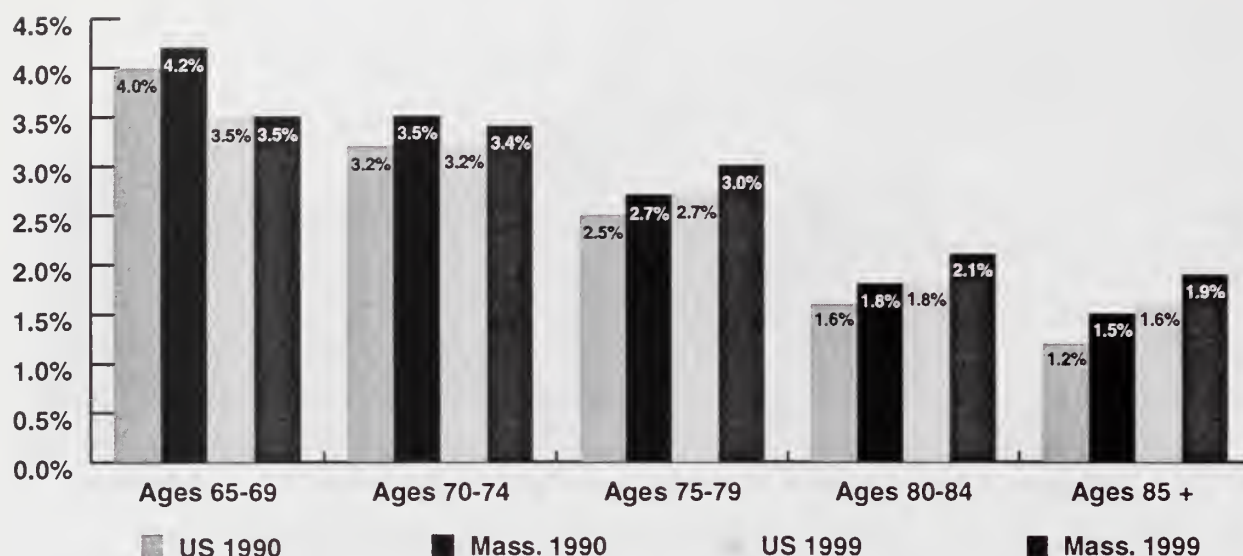
Source: MassCHIP database, Massachusetts Department of Public Health

**Figure 4.5**

- The proportion of Massachusetts residents for whom smoking or high cholesterol is a risk factor decreased between 1990 and 1997, while the proportion of those with hypertension or alcohol as a risk factor was fairly stable during this time period. However, Massachusetts residents were more likely to be overweight by the end of the decade than at the beginning.
- Overall, alcohol indicators in Massachusetts decreased slightly. The eight largest cities in Massachusetts had the highest rates for most types of substance abuse indicators, including alcohol-related hospital discharges. However, communities with a population under 10,000 had the highest rates for fatal traffic accidents related to alcohol use (not shown).
- Between 1992 and the first half of 1997, cigarette purchases dropped by 31% to 81 packs per capita (not shown).<sup>1</sup> The steepest declines occurred in 1993 and 1997, the two years following new excise taxes on tobacco.



## Percent of Elderly by Age Group in the Total Population in the US and Massachusetts (1990 and 1999)

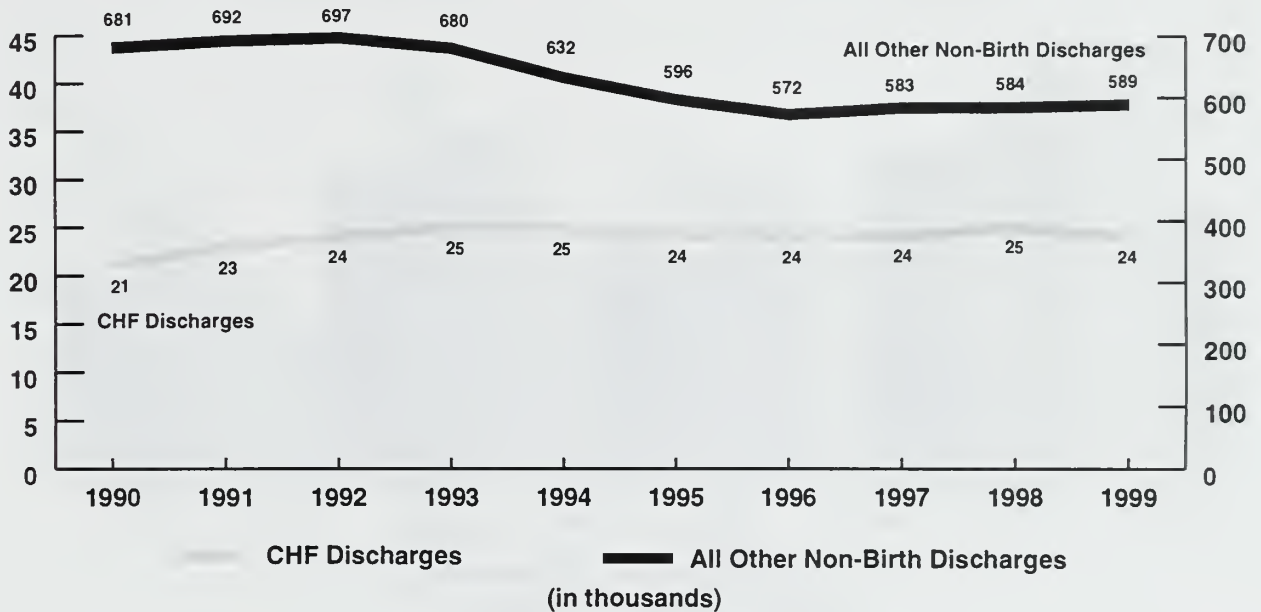


Source: "Population Estimates for the US, Regions, Divisions, and States by 5-Year Age Groups and Sex: Time Series Estimates, July 1, 1990 to July 1, 1999 and April 1, 1990," US Bureau of Census

**Figure 4.6**

- The older population of the United States and Massachusetts is growing. In 1999, 13.2% of the Massachusetts population was age 65 or over. The United States population rate for those ages 65 and over is slightly lower at 12.7%.
- Massachusetts has more residents in each age category over age 65 than the US as a whole, particularly in the groups over age 74.
- See Figure 1.8 on page 13 for population in all age categories.

## Hospital Discharges for Congestive Heart Failure (CHF) versus All Other Non-Birth Discharges in Massachusetts (1990-1999)



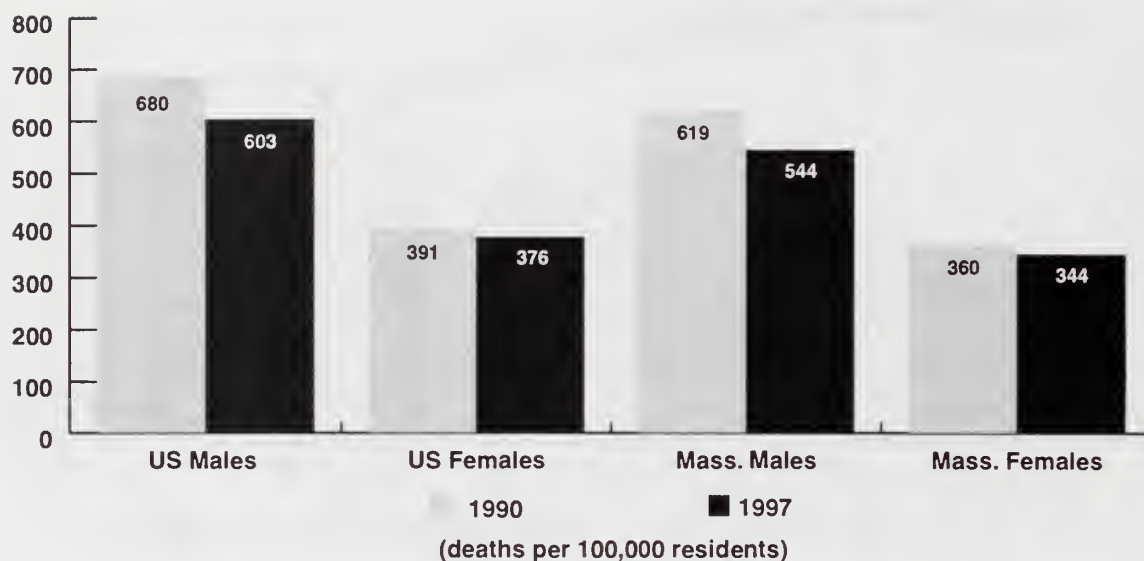
Source: Hospital discharge data, Massachusetts Division of Health Care Finance and Policy

**Figure 4.7**

- Over the decade, while discharges for all other non-birth causes have dropped (see Figure 3.14 on page 49) Massachusetts residents experienced more hospital discharges for CHF, used here as a proxy for chronic diseases in general. CHF affects the elderly far more often than younger people, as do most chronic diseases.

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## Age-Adjusted Death Rates by Gender in the US and Massachusetts (1990 and 1997)

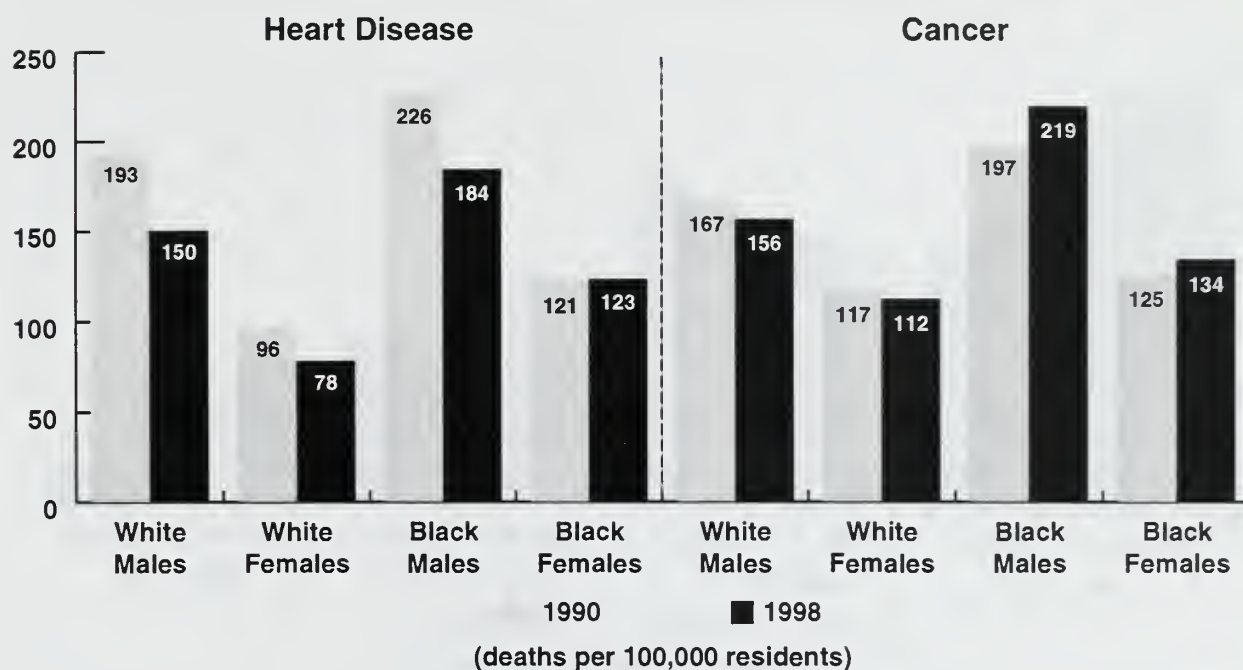


Sources: *Health, United States, 1999*, US Department of Health and Human Services; *Advance Data Deaths 1998*, Massachusetts Department of Public Health

**Figure 4.8**

- Death rates have dropped across the population both in Massachusetts and in the US, but much more so for men than for women. However, women still have a far lower age-adjusted death rate.
- In 1997, a woman's life expectancy at birth, on average, was 79.4 years of age, 5.8 years greater than for men. However, from 1990 to 1997, the average life expectancy at birth for a male rose 1.8 years. During this same time period, a woman's life expectancy grew only 0.5 years (not shown).

## Age-Adjusted Heart Disease and Cancer Death Rates by Race and Gender in Massachusetts (1990 and 1998)

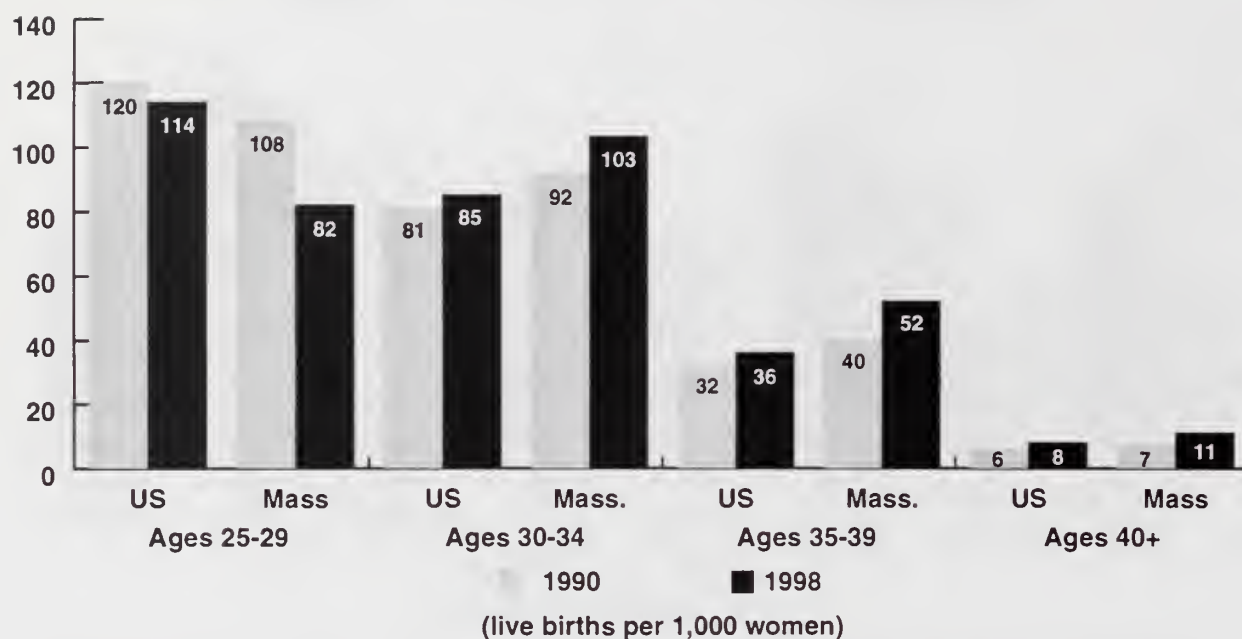


Source: *Advance Data Deaths 1998*, Massachusetts Department of Public Health

**Figure 4.9**

- Heart disease and cancer continued to be the first and second leading causes of death among Massachusetts residents in 1998, but have declined since 1990.
- Since 1990, age-adjusted heart disease rates have declined markedly among whites and black men in Massachusetts.
- Age-adjusted cancer death rates have decreased for white males and females since 1990, but not for black men or women. For the past 18 years, the highest rate of death from cancer was consistently for black males (not shown).

## Birth Rate by Age of Mother in the US and Massachusetts (1990 and 1998)



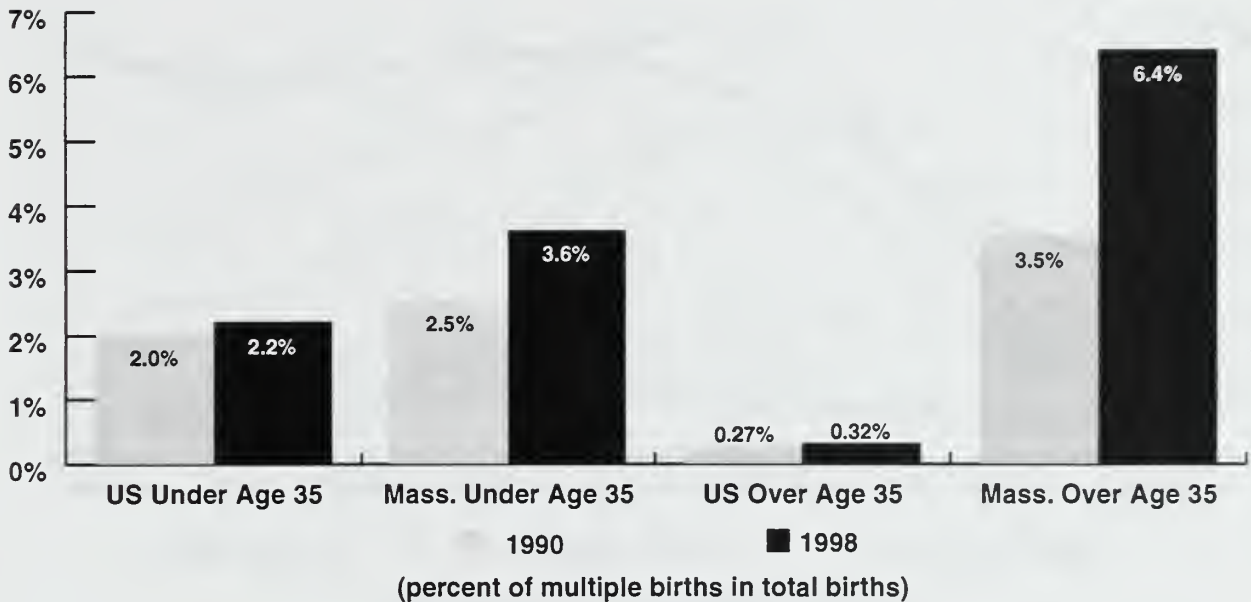
Sources: *Health, United States, 1999*, US Department of Health and Human Services; *Advance Data Deaths 1998*, Massachusetts Department of Public Health

**Figure 4.10**

- The age group with the largest increase in birth rate from 1990 to 1998 were women over age 40 both in the United States (33% increase) and, particularly, in Massachusetts (57% increase). In 1995, the birth rate for Massachusetts resident women ages 30-44 surpassed the rate for women younger than age 30 for the first time in Massachusetts history.
- In the younger age category, ages 25-29, Massachusetts had a lower birth rate in 1998 than the country as a whole, as it did in 1990, but it dropped more severely in Massachusetts (24%) than it did in the US (5%) over the decade.



### Percent of Multiple Births by Age of Mother in the US and Massachusetts (1990 and 1998)

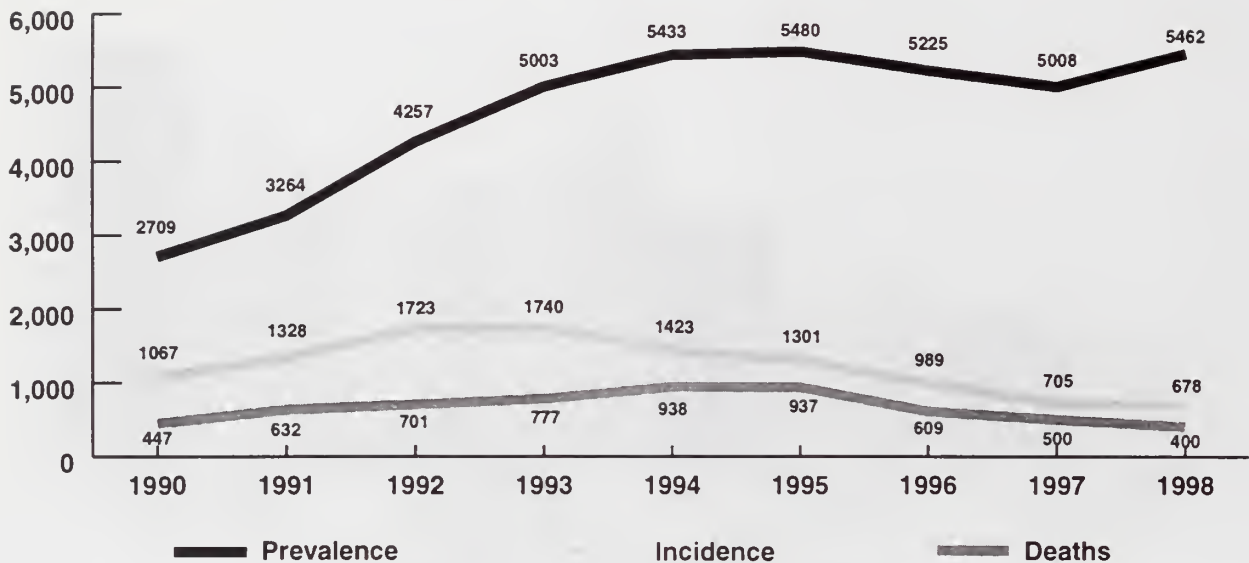


Sources: *National Vital Statistics Report*, September 14, 1999, US Center for Disease Control and Prevention; *Advance Data Births 1998*, Massachusetts Department of Public Health

**Figure 4.11**

- The total percentage of multiple births (twins or more) was 4.2% in 1998. This compares to 2.5% in 1989, a 68% increase. For women under age 35, the percentage of multiple births increased from 2.5% in 1990 to 3.6% in 1998, an increase of 44%. Among women ages 35 and over, the percentage of multiple births nearly doubled during this time period. In 1998, it was 6.4%—up from 3.5% in 1990. These represented a sharp difference compared with the national trends which were fairly stable over this period.
- This proliferation in multiple births has adversely affected Massachusetts' low birth weight rate which is increasing (see Figure 4.4 on page 68). The increase in multiple births can be attributed to an increase in mothers' ages and the use of fertility enhancing therapies. Massachusetts is one of eight states which mandates in vitro fertilization as a covered benefit in health plans sold in this state (see Figure 2.4 on page 24).

## AIDS Incidence, Prevalence and Deaths in Massachusetts (1990-1998)

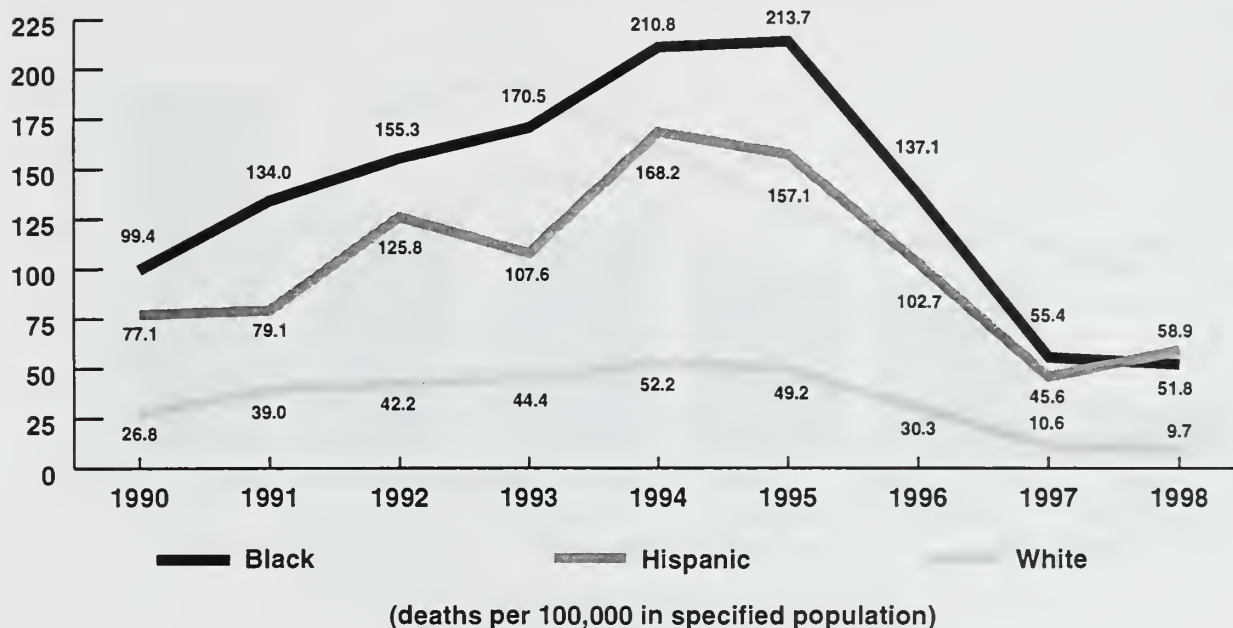


Source: *Advance Data Deaths 1998*, Massachusetts Department of Public Health

**Figure 4.12**

- The prevalence of AIDS in Massachusetts doubled between 1990 and 1998, while the incidence rate of new cases declined by about 35%.
- The expansion of the AIDS case definition in 1993, to include persons earlier in the course of their illness, created a large increase in the number of reported cases. The number of AIDS cases in 1993 includes persons who were not previously counted under the old definition.
- The number of individuals who died from AIDS in Massachusetts was similar in 1990 and 1998, 447 cases in 1990 and 400 cases in 1998. However, in the intervening years, the number of deaths peaked at 938 in 1994. The decrease in deaths since this peak is due to several factors, including the introduction of new antiretroviral therapies, and improved public health and medical interventions.

## AIDS and HIV-Related Death Rates for Males Ages 25-44 by Race and Ethnicity in Massachusetts (1990-1998)

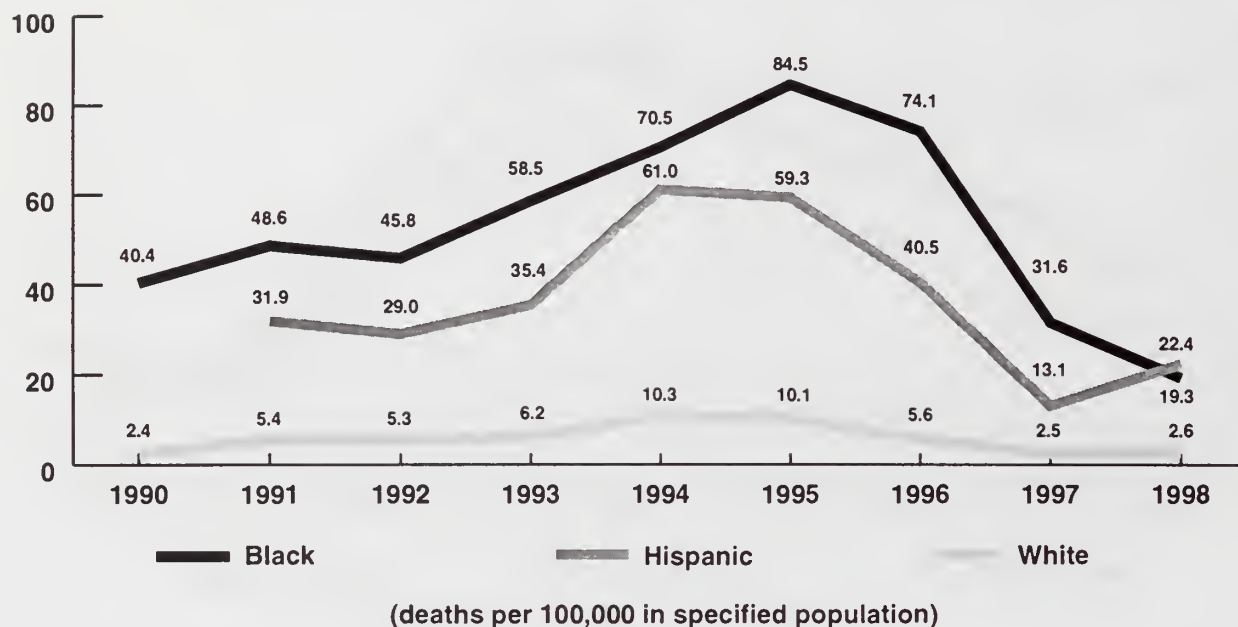


Source: *Advance Data Deaths 1998*, Massachusetts Department of Public Health

**Figure 4.13**

- AIDS death rates have seen a much more dramatic fluctuation over the decade for individuals of color than for whites. In fact, the decrease in the death rate due to AIDS, illustrated in Figure 4.12 on page 76, is largely attributable to the dramatic decline in deaths among blacks and Hispanics.
- For the first time in Massachusetts, more male Hispanics died of AIDS/HIV-related diseases than black males in 1998. This was due to the 29% decline in the number of AIDS/HIV-related deaths among all blacks—from 76 to 54 from 1997 to 1998 and a 23% increase in the number of AIDS/HIV-related deaths among Hispanics—from 47 to 58 (not shown).
- The highest death rates occurred among Hispanic and black males (58.9 and 51.8 deaths per 100,000 residents, respectively). The age-specific death rates among black and Hispanic men ages 25 to 44 were five times higher than the age-specific rates for whites.
- Blacks and Hispanics, who combined accounted for less than 10% of the population in 1990, account for 55% of persons living with AIDS (not shown).

## AIDS and HIV-Related Death Rates for Females Ages 25-44 by Race and Ethnicity in Massachusetts (1990-1998)



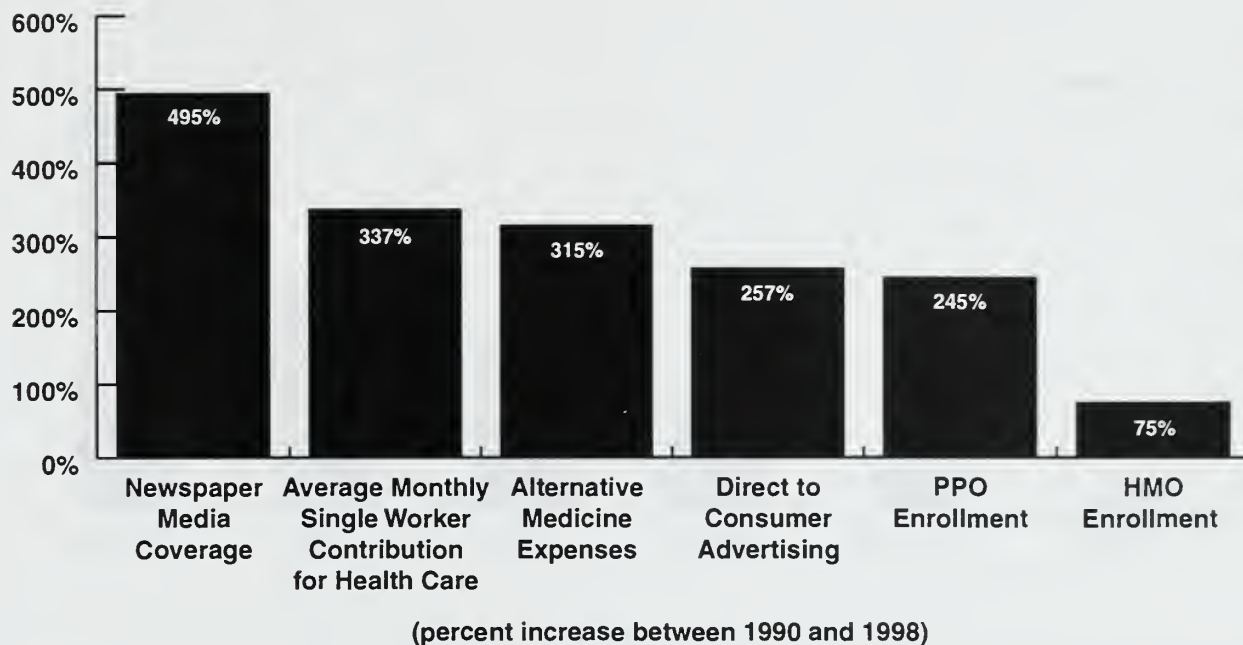
Source: *Advance Data Deaths 1998*, Massachusetts Department of Public Health

**Figure 4.14**

- Women comprise a growing proportion of the population of individuals with AIDS. The percentage of women living with AIDS among total number of people living with AIDS has increased from 18% in 1990 to 28% in 1998 (not shown).
- In 1998, females accounted for 21% of all AIDS deaths (not shown).
- The race and ethnicity patterns described above for men (see Figure 4.13 on page 77) also apply to women in measuring death rates due to AIDS, although deaths from AIDS among Hispanic women took a slight upturn at the end of the decade. The largest decline in death rates for persons ages 25 to 44 from 1997 to 1998 was among black women (31.6 to 19.3 deaths per 100,000).



## Indicators Driving Consumerism in the US (1990-1998)



Sources: *Survey of Employer-Sponsored Health Benefits*, 1993, 1996-1998, Kaiser Foundation; *HIAA Survey*, 1998; *The Re-Design of Delivery Complimentary and Integrative Medicine*, Roger Jahnke 1999, Boston Globe Archives

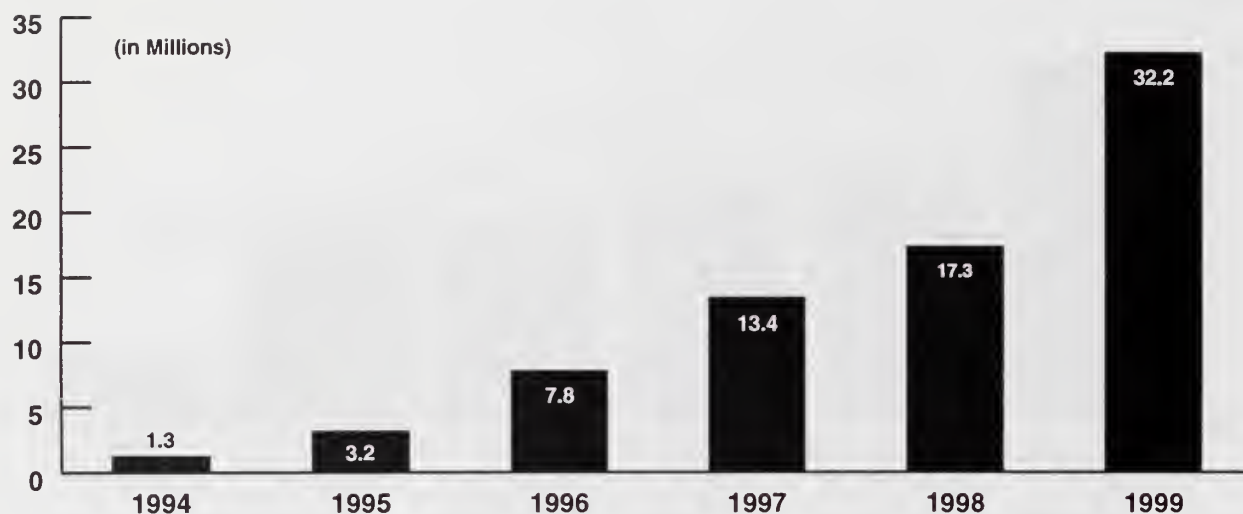
**Figure 4.15**

- Several indicators suggest that consumers are more involved in their health care in 1998 than they were in 1990. There is more media coverage about health care issues, and more direct to consumer advertising about health care which the Food and Drug Administration (FDA) began allowing in 1997. In addition, consumers bear more financial responsibility for their health care coverage, but most still opt for wide choice and few restrictions when shopping for plans, as shown by the 245% rise in PPO enrollment nationally, much higher than the 75% enrollment growth in HMOs. PPOs allow the patients more choice of how to receive services and at what point services are needed.
- Consumers are using their new involvement to make more choices about their health care. A growing proportion of consumers are using alternative therapies, generally not covered by their insurance. So even while people decry the increase in their health insurance premiums, they are paying out of pocket for therapies they value which may not be covered by their insurance.



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## Number of Adults Using E-Health Web Sites in the US (1994-1999)



Sources: Cyberdialogue 2000; "Health Information Online," *Healthpoint*, April 2000, Division of Health Care Finance and Policy

Note: Complete data were unavailable for 1990-1994.

**Figure 4.16**

- In 1999, 32.2 million adults used the internet to seek health care information, a 25-fold increase from 1994, with usage between 1998 and 1999 almost doubling. These searches, including all aspects of health delivery, disease management and drug information are expected to more than double in the next few years.

**Endnote for Chapter 4: Health Care Consumption**

1. Massachusetts Health Council, Inc., *Common Health for the Commonwealth*, 1999.

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# Appendix I:

## Time Line of Major Events (1990-1999)

1990 1990 1990 1990 1990 1990 1990 1990

1. US Census Bureau reports that nearly 15% of Americans (37 million in all) are uninsured at any given time. Massachusetts uninsured is estimated at 400,000 (see year 1998 #1).
2. US spends 12% of GNP on health care.
3. Agency for Health Care Policy and Research (now Agency for Healthcare Research and Quality—AHRQ) established to carry out a medical treatment effectiveness program over five years to determine what works and to develop “practice guidelines and standards ... to assess and assure quality of care.”
4. Massachusetts passes Health Care Proxy law giving citizens the right to appoint a proxy to make their medical decisions if they become incompetent to do so.
5. Massachusetts Public Health Council approves move of St. Margaret’s Hospital from Dorchester to St. Elizabeth’s Hospital in Brighton.
6. New employer tax used to set up state trust for uninsured.
7. Harvard Community Health Plan acquires Rhode Island Group Health Association.
8. Digital Equipment Corporation becomes the first Massachusetts employer to offer a point of service plan in an effort to increase HMO usage from 28% among its 70,000 employees nationwide.
9. Since 1985, when the Massachusetts Department of Public Health Infant Mortality Task Force was founded, the infant mortality gap between black and white babies in Boston increased to 300% (see year 1998 #3 and Figure 4.4 on page 68).
10. Dr. Troy Brennan and other researchers release results of a three year study of patients in New York suggesting that four times as many Americans die from medically caused injury than are killed in auto accidents (see year 1999 #13).
11. Acute Hospital Closures/Conversions = 4

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## 1991 1991 1991 1991 1991 1991 1991 1991

1. Federal Patient Self Determination Act passes requiring health care facilities to ask patients how they would want to die and who should speak for them if they become unable to speak for themselves.
2. Health Plan Employer Data and Information Set (HEDIS) 1.0 is released. It is designed to assist employers in measuring health plan performance.
3. Comprehensive Workers Compensation reform is passed in Massachusetts. It is designed to correct, among other things, 9,500 unresolved disputed injury claims, long waits for hearings, and high premiums.
4. Massachusetts hospitals, regulated since 1981, are deregulated. Health care financing legislation Chapter 495 replaces Chapter 23. For the first time, Community Health Centers are reimbursed for free care through the Uncompensated Care Pool.
5. Nurse practitioners, physician assistants and specialized psychiatric nurses win prescribing authority in Massachusetts, joining those in 30 other states.
6. Bay State Health Care (offering wide provider choice to its members and little "management" of care) announces financial troubles.
7. Salaried doctors at Harvard Community Health Plan depose CEO Thomas Pyle over the issue of doctor productivity.
8. Lotus Development Corporation becomes the first major Massachusetts employer to insure unmarried partners of employees.
9. The Massachusetts-based Institute for Healthcare Improvement incorporates.
10. Massachusetts Acute Hospital Closures/Conversions = 1

## 1992 1992 1992 1992 1992 1992 1992 1992

1. Ballot initiative passes in Massachusetts authorizing an increase in the tobacco tax to fund a broad-based campaign to prevent young people from smoking.
2. Bay State Health Care HMO merges with Blue Cross Blue Shield and hospitals agree to forgive some debt.
3. Massachusetts receives approval from the federal government to start a managed care system for 400,000 Medicaid recipients.
4. Report from Families USA Foundation finds that prices of the 20 most popular prescription drugs increased 80% between 1984 and 1991.
5. Census report indicates that the percentage of uninsured in Massachusetts rose 28% between 1989 and 1992.
6. Massachusetts Public Health Council ties approval of hospital expansion to community service.
7. Massachusetts Acute Hospital Closures/Conversions = 0



## 1993 1993 1993 1993 1993 1993 1993 1993

1. President Clinton proposes "The American Health Security Act" and the insurance industry answers with Harry and Louise.
2. The Family and Medical Leave Act passes entitling a qualified employee up to 12 weeks of unpaid leave, and requiring the employer to maintain pre-existing health insurance.
3. Massachusetts Healthcare Purchaser Group forms representing over one million subscribers.
4. New England HEDIS Coalition is established for employers and health plans to work together to produce comparable performance data for the region.
5. Massachusetts Acute Hospital Closures/Conversions = 4

## 1994 1994 1994 1994 1994 1994 1994 1994

1. President Clinton abandons the Health Security Act.
2. Any Willing Provider law (for pharmacies) passes through the Massachusetts state legislature.
3. Massachusetts Attorney General Harshbarger proposes Community Benefits Program for hospitals.
4. Two chemotherapy overdoses, one fatal, at Dana Farber Cancer Institute, trigger outrage and official investigation.
5. Massachusetts Healthcare Purchaser Group issues its 0% premium increase challenge to HMOs and insurers for 1995 rates.
6. Partners HealthCare System Inc. is established.
7. Harvard Community Health Plan, Inc. and Pilgrim Health Care announce plan to merge.
8. Tufts Associated Health Plans, Inc. announces Secure Horizons, the first Medicare HMO product in Massachusetts.
9. Massachusetts Acute Hospital Closures/Conversions = 3

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## 1995 1995 1995 1995 1995 1995 1995 1995

1. US ruling prohibits employers from denying jobs because of a genetic predisposition to illness.
2. Governor Weld's administration receives initial approval of a Section 1115 waiver of federal Medicaid requirements allowing Massachusetts to expand Medicaid benefits to a variety of groups.
3. Governor Weld signed Chapter 5 into law implementing welfare reform in Massachusetts.
4. Massachusetts state legislature enacts The Childbirth and Postpartum Care Benefits Law which mandates insurance providers to cover 48 hour maternity stays.
5. Massachusetts Healthcare Purchaser Group issues its 3% rollback premium challenge for 1996; Harvard Pilgrim Health Care says "target could be met," Tufts Associated Health Plans, Inc. terms it "realistic."
6. HMO profits drop dramatically.
7. HMOs announce a cut in premiums for 1996.
8. Blue Cross Blue Shield announces \$17 million loss in the first quarter.
9. Gap widens between uncompensated care costs and Uncompensated Care Pool reimbursement.
10. Harvard Pilgrim Health Care forms to become the largest HMO in the region.
11. Massachusetts Acute Hospital Closures/Conversions = 0

## 1996 1996 1996 1996 1996 1996 1996 1996

1. The Federal Health Insurance Portability and Accountability Act passes enabling insured consumers to retain employer-sponsored coverage if they leave their jobs.
2. Erroneous Medicare billing practices of 83 Massachusetts hospitals are investigated by the Department of Justice and the hospitals are ordered to pay the federal government \$3.4 million.
3. Massachusetts Attorney General Harshbarger announces a precedent-setting agreement limiting the number of doctors a health care system can control.
4. Chapter 203 health care access law passes, raising the state's tobacco tax to fund expanded health care coverage for low-income children under MassHealth and establishing a prescription drug subsidy program for the elderly. Law serves as model for 1997 Federal/State Children's Health Insurance Program (S-CHIP).
5. Non-group insurance reform law passes removing barriers to insurance coverage such as pre-existing condition exclusions, waiting periods, and health screenings.
6. Legislation is filed to protect the public interest in the conversion of non-profit hospitals and HMOs.
7. Massachusetts state regulation passes allowing all residents to buy standard policies from insurers regardless of their medical condition.
8. Tufts Associated Health Plans, Inc. receives approval to expand into Maine.
9. Massachusetts Acute Hospital Closures/Conversions = 2

# 1997 1997 1997 1997 1997 1997 1997 1997 1997

1. Federal Balanced Budget Act passes cutting Medicare reimbursement to hospitals, nursing homes and other providers.
2. Tobacco companies settle their multi-state attorneys general lawsuit.
3. Federal government sets up a pilot program in New York to give bonuses to teaching hospitals that train fewer specialists.
4. Special Advisory Commission on Managed Care is established by Governor Weld.
5. Massachusetts Uncompensated Care Pool is restructured, instituting a surcharge on all hospital and insurer bills.
6. MassHealth expansion program is implemented.
7. State legislation approves the Partnership Program making small business health insurance more affordable for lower-income workers.
8. Massachusetts Senior Pharmacy Program is implemented.
9. Bill filed requiring health insurers to do business with any teaching hospital that can prove it meets minimum cost and teaching quality criteria in response to Harvard Pilgrim Health Care dropping New England Medical Center from its network.
10. Blue Cross Blue Shield of Massachusetts is reorganized into a tax exempt managed care company, an indemnity insurance company and an administrative services company in attempt to regain profitability.
11. Harvard Pilgrim Health Care buys Neighborhood Health Plan.
12. Massachusetts Acute Hospital Closures/Conversions = 2

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# 1998 1998 1998 1998 1998 1998 1998 1998

1. US Census Bureau reports that 43.7 million Americans (16.4%) lack health insurance (see year 1990 #1).
2. Boston named by Center for Studying Health System Change as having one of the lowest rates of uninsured children (7.6%) of 12 major metropolitan areas across the nation.
3. Black infant mortality rate drops for the fifth year in a row, producing the smallest racial disparity ever (see year 1990 #14 and Figure 4.4 on page 68).
4. Joint Committee of House and Senate is unable to agree upon final version of Massachusetts HMO Regulation Bill.
5. Study by Massachusetts Association of HMOs shows that 23% of seniors require prescription drugs totaling more than \$1,500 a year.
6. Judge strikes down state law requiring Medicare HMOs to offer unlimited prescription drug coverage for the elderly and disabled, effective January 1, 1999.
7. HMOs announce that they will limit drug benefits for Medicare patients.
8. Massachusetts Health Quality Partnership releases results of first statewide patient satisfaction survey of hospital maternity care conducted by the Picker Institute.
9. Massachusetts HMOs report razor thin profits for 1997.
10. Harvard Pilgrim Health Care reports \$22.2 million loss for the first three quarters of 1998.
11. Tufts Associated Health Plans, Inc. reports \$6.4 million loss for the first three quarters of 1998.
12. Aetna announces that it is pulling out of the Medicare HMO market.
13. Tufts Associated Health Plans, Inc. pulls out of the Massachusetts Medicaid program.
14. Viagra is approved by FDA.
15. HMOs begin to limit Viagra coverage.
16. Blue Cross Blue Shield offers \$8 million in refunds to 60,000 consumers to settle a lawsuit alleging that it failed to pass along hospital discounts to policyholders.
17. Massachusetts Healthcare Purchaser Group predicts 2% increase in health care premiums in 1999.
18. Massachusetts Acute Hospital Closures/Conversions = 0



# 1999 1999 1999 1999 1999 1999 1999

1. American Medical Association officials forced to resign over product endorsement proposal.
2. The New England Journal of Medicine fires its editor over commercialization of the journal.
3. "Whistle-blower" rule passed prohibiting Massachusetts hospitals and nursing homes from retaliating against health care workers who complain of unsafe patient care.
4. Massachusetts Senior Pharmacy Program implements catastrophic benefits for seniors and disabled persons who exceed benefits or are income ineligible for the program.
5. Standard and Poor's rates as "weak" the financial health of 14 New England HMOs.
6. HMOs establish largest rate increases in over a decade.
7. Kaiser Permanente announces plans to withdraw from Massachusetts.
8. Tufts Associated Health Plans, Inc. announces that it will pull out of the Maine market.
9. Harvard Pilgrim Health Care is placed under receivership by Rhode Island state regulators (in Massachusetts, this occurred in January 2000).
10. Massachusetts hospitals face a \$724 million cut in Medicare funds due to the Balanced Budget Act.
11. Massachusetts Hospital Association (MHA) survey shows that Massachusetts hospital profit margins are the worst they have been in ten years.
12. Six community hospitals lobby for approval to perform tertiary cardiac procedures.
13. Institute of Medicine releases study by Dr. Troy Brennan and others stating more people die from medical errors than from motor vehicle accidents (see year 1990 #10).
14. Massachusetts Acute Hospital Closures/Conversions = 3

Source: Boston Globe Archives, 1990-1999; *Monday Report*, Massachusetts Hospital Association

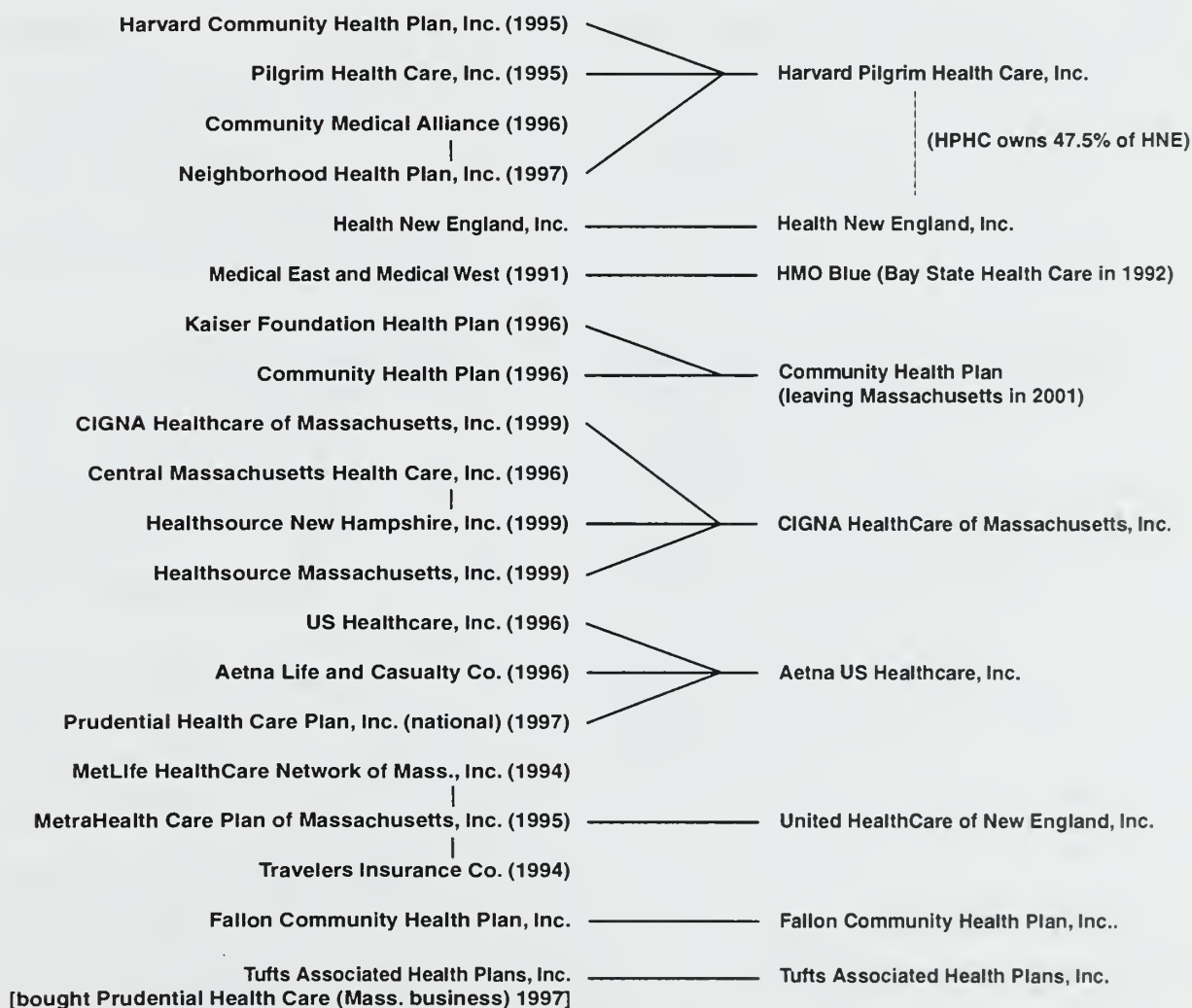


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# Appendix II:

## HMO Consolidation Chart

### (1990-1999)



Sources: *The Boston Globe*; *Boston Business Journal*; *Business Insurance*; Massachusetts Association of HMOs web site; *The New York Times*; *Monday Report*; Massachusetts Hospital Association; Massachusetts Division of Insurance

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# Appendix III: Hospital Systems

## **CareGroup, Inc.**

Beth Israel Deaconess Medical Center  
New England Baptist Hospital  
Mount Auburn Hospital  
Deaconess-Waltham Hospital  
Deaconess-Nashoba Hospital  
Deaconess-Glover Hospital Corporation

## **UMass Memorial Health Care**

UMass Memorial Medical Center  
Clinton Hospital  
Marlborough Hospital  
HealthAlliance Hospitals, Inc.

## **Partners HealthCare System, Inc.**

Massachusetts General Hospital  
Brigham & Women's Hospital  
North Shore Medical Center  
Dana-Farber Cancer Institute  
Faulkner Hospital  
Newton-Wellesley Hospital

## **Caritas Christi Health Care System**

Holy Family Hospital  
Saint Elizabeth's Medical Center  
Carney Hospital  
Good Samaritan Medical Center  
Saint Anne's Hospital Corporation  
Caritas Norwood Hospital

## **Baystate Health Systems**

Baystate Medical Center  
Franklin Medical Center  
Mary Lane Hospital

## **Berkshire Health Systems**

Berkshire Medical Center  
Fairview Hospital

## **Hallmark Health Corporation**

Lawrence Memorial Hospital  
Malden Medical Center  
Melrose-Wakefield Hospital  
Whidden Memorial Hospital

Source: Massachusetts Hospital Association web site: <http://www.mhalink.org>; Division of Health Care Finance and Policy





# Appendix IV:

## Acute Hospital

### Full Asset Mergers (1990-1999)

- 1990 Medical Center of Central Mass, later Memorial Health Care (Worcester Memorial, Worcester Hahnemann and Holden Hospitals)
- 1990 Salem Hospital (North Shore Children's and Salem Hospitals)
- 1992 Metrowest Medical Center (Framingham Union and Leonard Morse Hospitals)
- 1992 Saints Memorial (Saint John's and Saint Joseph's Hospitals)
- 1993 Good Samaritan (Cardinal Cushing and Goddard Memorial Hospitals)
- 1994 Health Alliance (Leominster and Burbank Hospitals)
- 1995 Lahey Hitchcock Clinic [Lahey Clinic and Mary Hitchcock Clinic (NH)]
- 1996 Cape Cod Health Systems (Cape Cod and Falmouth Hospitals)
- 1996 Southcoast Health System (Charlton Memorial, Saint Luke's and Tobey Hospitals)
- 1996 Berkshire Medical Center (Berkshire Medical Center and Hillcrest Hospital)
- 1996 Cambridge Community Health Network (Cambridge and Somerville Hospitals)
- 1996 Boston Medical Center (University and Boston City Hospitals)
- 1996 UniCare Health System (Melrose-Wakefield and Whidden Memorial Hospitals)
- 1996 Northeast Health Systems (Beverly and Addison Gilbert Hospitals)
- 1996 Beth Israel Deaconess Medical Center (NE Deaconess and Beth Israel Hospitals)
- 1997 Mercy (Mercy and Providence Hospitals)
- 1997 Hallmark Health System Inc. (Lawrence Memorial Hospital, Malden Medical Center and UniCare Health System)
- 1998 UMass Memorial Medical Center (Memorial Health Care and UMass Medical Center)



# Appendix V: Hospital Closures as Acute Inpatient Facilities (1990-1999)

1990 Hunt Memorial Hospital  
1990 Holden Hospital  
1990 Massachusetts Osteopathic Hospital  
1990 Saint Luke's Middleborough Hospital  
1991 Worcester City Hospital  
1993 Amesbury Hospital  
1993 Saint Margaret's Hospital for Women  
1993 J.B. Thomas Hospital  
1993 Boston Hahnemann Hospital  
1994 Winthrop Community Hospital  
1994 Saint Joseph's Hospital  
1994 Ludlow Hospital  
1996 Providence Hospital  
1996 Goddard Memorial Hospital  
1997 Dana Farber Cancer Institute  
1997 Burbank Hospital  
1999 Boston Regional Medical Center  
1999 Malden Hospital  
1999 Symmes Hospital

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# Appendix VI:

## Hospital Acquisitions (1990-1999)

- 1990 Beverly Hospital purchase of Hunt Memorial Hospital
- 1990 Cardinal Cushing Hospital purchase of Saint Luke's Middleborough Hospital
- 1992 Lahey Clinic purchase of J.B. Thomas Hospital
- 1993 Transitional Hospitals Corp. purchase of J.B. Thomas Hospital (for-profit)
- 1994 Vencor, Inc. purchase of Boston Hahnemann Hospital (for-profit)
- 1994 Lahey Clinic (50%) and New England Rehabilitation Hospital (50%) acquisition of Symmes Hospital
- 1994 Boston University Medical Center and East Boston Neighborhood Health Center acquisition of Winthrop Hospital
- 1995 Memorial Health Care acquisition of Clinton Hospital
- 1996 Memorial Health Care acquisition of Marlborough Hospital
- 1996 Columbia/HCA purchase of Metrowest Medical Center (for-profit)
- 1996 OrNda HealthCorp purchase of Saint Vincent Hospital (for-profit)
- 1997 Caritas Christi purchase of Carney Hospital
- 1997 Vencor purchase of Transitional Hospitals Corp. (formerly J.B. Thomas Hospital)
- 1997 Caritas Christi acquisition of Neponset Valley Health Systems (Norwood)
- 1997 Tenet Healthcare Corp acquisition of OrNda HealthCorp
- 1999 Tenet Healthcare Corp 80% acquisition of Metrowest Medical Center (for-profit)



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# Production Notes

**M**assachusetts *Health Care Trends: 1990-1999* was researched and produced by the Massachusetts Division of Health Care Finance and Policy. The Division is solely responsible for its content and distribution.

Publication design, editing, page layout and the originals for this document were produced in-house using cost-effective, elec-

tronic desktop publishing software and microcomputer equipment.

*Massachusetts Health Care Trends: 1990-1999* was printed and assembled at the Department of Procurement and General Services, Office of Central Reprographics. The report was prepared for general distribution at the Division of Health Care Finance and Policy.

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Copies of this report are available from the  
Division of Health Care Finance and Policy  
Office of Communications  
Harry O. Lohr, Jr., Director

Publication of this document approved by Philmore Anderson, State Purchasing Agent

Publication Number: 18447-114-1000-10/00-350-C.R.

Printed on recycled paper.





